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AND

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THE RELATIONS OF GOITRE TO PREGNANCY AND DERANGEMENTS OF THE GENERATIVE ORGANS OF WOMEN.

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> " Rien n'est isolé dans l'économie vivante."

INTRODUCTION.

That the thyroid gland sympathizes with the uterus, and is profoundly affected by many of its conditions, is a fact that has attracted the attention both of ancient and modern writers.

Having myself seen many cases of enlarged thyroid gland, or goitre, occurring in young girls at about the age of puberty, and in nulliparous and child-bearing women, which could be directly traced to disorders incident to the establishment of menstruation, to functional or organic diseases of the uterus or to pregnancy, I was led to believe that the subject was deserving of attentive and careful study.

My interest was further increased by having, in my public clinic and in my private practice, a number of patients who exhibited in a marked degree the relations of goitre to uterine disorders. While treating these cases, I was struck so forcibly by some of the peculiar phenomena presented, that I was led to make considerable research in order to find parallel cases; and while engaged in this pursuit, my interest was still further heightened by receiving a thesis from Paris[1] which contained much useful information on the subject of this paper; and being also the result of much research, it enabled me to turn at once to the works of some of those who have written most extensively and learnedly upon this subject. And yet I must confess great surprise at the meagreness of the details which I found, and, indeed, the comparative infrequency with which the subject was even hinted at; although I began with the earlier writers, and followed the subject carefully down to the present time. The thesis referred to, while not an exhaustive, complete, or in all respects an accurate review of the subject, nevertheless possesses merit and furnishes some very interesting reading.

A minute description of the thyroid gland is hardly necessary in this place; but a brief review of its structure and position may subserve a useful purpose in recalling its anatomical connection with other parts of the body.

This gland, then, is classified among the vascular bodies without ducts. It is situated at the upper part of the trachea, and consists, in general, of two lateral lobes connected by an isthmus which crosses in front of the three upper rings of the trachea. Each lobe is conical in shape, and measures about two inches in length, and three quarters of an inch in breadth; furthermore, it must be borne in mind that the gland is in intimate connection with the larynx, and partakes in its movements.

The proportion of the gland to the entire body diminishes with age; in new-born infants, it is as 1 : 300; in adults, it falls to the proportion of 1 : 1,800. It is supplied by four, sometimes five arteries, which are branches of the carotid and subclavian trunks; the fifth artery, when present, lies close to the median line of the trachea. The organ lies, moreover, in close contiguity to the great vessels and nerves of the neck.

Much larger in the angular neck of man, in woman it softens the projections formed by the cartilages and muscles of the subhyoid region, and assists, by its development, in rounding the neck and imparting to it its graceful form. But while in the great majority of cases this organ contributes to the external beauty of the female sex, on the other hand it sometimes constitutes, by its hypertrophy, a veritable deformity.

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[1] Essai sur le goître dans ses relations avec les fonctions utérines. Par Victor Porcher. Th. pour le doct., Paris, 1880.

The physiological import of the thyroid gland, so far from being known, is only guessed at. All that we do know with certainty is that it is a structure of much greater importance in the economy of woman than in that of man; being in this respect somewhat analogous to the mammary gland, for it is always larger, and is diseased much more frequently, in the female sex. This is a fact which has been recognized by all authors; but no one has as yet been able to establish by a precise law the inequality existing between the two sexes in this regard; but it is always very noticeable, especially in countries where cretinism prevails. This is true as well of the exophthalmic variety of goitre.

As regards the prevalence of goitre, it is stated on good authority that there are 500,000 goitrous persons in France alone; and in a single town, St. Aubin, near Rouen, one female in every sixteen of the entire population has goitre more or less developed. In Piedmont and Savoy, goitre is very rife; according to official reports published a few years ago, there were in these districts 18,462 persons with simple goitre, besides 3,909 cretins.

To illustrate the comparative frequency of goitre in the opposite sexes, we will give a few figures. Laycock[1] found in 551 cases of goitre, only 26 occurring in men. Dr. Luton,[2] in a series of 48 cases, found 45 of them occurring in women.

This predominance is also proved by medical statistics, and by the observations of physicians who practise in countries where goitre is endemic. In 1854, Tourdes[3] noted the great frequency with which goitre occurred in women at Strasbourg. Mitchell, in Scotland,[4] found 90 women among 100 goitrous persons.

Dr. Luton[5] finds that exophthalmic, as well as the other varieties of goitre, have a marked predilection for women; and quotes Withuisen, who found 42 cases of exophthalmic goitre in women, to eight cases in men.

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[1] Prof. Thos. Laycock, on the Cause and Nature of the Vascular Kind of Bronchocele and of Pulsations termed Anemic, in Edin. Med. Journ., 1863, Vol. IX., p. 8.

[2] Dr. Alfred Luton in Dict. de Méd. et Chir. Prat., Vol. XVI., p. 472.

[3] Dr. M. G. Tourdes: Du Goître à Strasbourg, Recherches statistiques et médicales—in Gaz. Méd., Strasbourg, 1854, t. XIV.

[4] Arthur Mitchell, on Nithdale Neck or Goitre in Scotland—in Brit. and Foreign Med. and Surg. Rev., 1862, Vol. XXIX., p. 504.

[5] Op. citat.

In the *New York Times* of Dec. 8th, 1880, was published the following: "Ohio papers say that goitre is prevailing in an endemic form in the southern portion of Montgomery County, that State, and causing much alarm. There are some forty (40) cases in one township, and 95 per cent of the victims are women."

These figures prove conclusively that women are more subject to the disease than men. Is there, then, some special reason to account for this fact? We can only answer that it lies in conditions from which men are naturally exempt: namely, in the uterine functions, which are connected with the development, not only of endemic, but also of sporadic goitre.

With these introductory remarks, I now invite attention to the further consideration of my subject, which I shall divide as follows: first, a brief historical review; second, etiology; third, pathology; fourth, a short consideration of exophthalmic goitre, and fifth, the treatment of goitre.

HISTORY.

The etiology of endemic hypertrophy of the thyroid gland has been more attentively studied than that of any of the other varieties of the disease.

In attempting to assign the cause of endemic goitre, most writers have agreed in making the geological conditions of the country responsible for the great majority of the cases; but when it comes to establishing the precise conditions, there is the greatest possible diversity of opinions. Some have attributed it to a humid atmosphere; others to altitude; others still, to the character of the water impregnated as it sometimes is with magnesian salts, or with fluorides and sulphides, and sometimes, also, characterized by the absence of oxygen or lack of iodine and the iodides.

The causes of sporadic goitre are much less obscure, for they are frequently to be attributed to the uterine functions. These functions sometimes impress upon goitre a particular course, so that they play a great part in the etiology of goitre in general.

Porcher[1] says that these particular causes were not mentioned by the ancient writers, and that even the modern authors have failed to find precise indications upon the subject until we come to J. L. Petit. But this is hardly true, for in Aëtius' works[1] we find this interesting reference made to goitre: "A tumor occurring in the throat is called bronchocele, for the ancients called every tumor a '*cele*'; the name, therefore, is common, but the varieties differ. The tumor sometimes arises from dilatation of the blood-vessels in the part, as happens very frequently in parturition, when the woman in extreme pain has forcibly held her breath."

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[1] Porcher, op. citat.

Petit,[2] at the beginning of the last century, in his treatise on surgical diseases and their appropriate treatment, recognized the influence of the uterine functions in the production of goitre, when he said that it happens frequently to women at the end of confinement; that, in consequence of the violent efforts which are made to expel the child, the thyroid gland swells and forms a considerable tumor. He adds that this disease sometimes occurs in young girls who have not yet menstruated, or with whom this natural evacuation is established with difficulty. "In both these varieties the tumors are sometimes made to disappear by strict attention to diet, and the proper administration of remedies, and especially the application of marine salt and sal ammoniac, either separately or together; these may be inclosed in a kind of collar covered with black taffeta. Finally, I have seen these tumors disappear when menstruation was established; and I have seen women cured during the pregnancy which followed the one that caused the tumor in question."

Paré[3] gives the derivation of goitre as follows: "Gongrona is a term used by Hippocrates and is equivalent to the French goüetre or goüetron, to the Greek bronchocele, and to the Latin hernia gutturis. It is a tumor of the throat, and the term is derived from the Greek *gongros*, which properly signifies a protuberance, or excrescence that grows on the trunks of trees, and is called by Pliny, *fungus*."

"Some goitres are painless," he says, "being composed of flesh having little sensibility; some are curable, and others incurable; some are small, while others are of large size and occupy the entire neck; some have cysts, while others have none. In those which can be cured, an opening is made by cautery, or by the lancet, when the foreign matter is removed at once, if possible, or, if this cannot be done, at various times by the proper measures, then the ulcer will close up and cicatrize."

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[1] Aëtii Tetr. IV., Sermo II., Cap. VI., Frankfort, 1567.

[2] Ouvrage Posthume mis au jour par M. Lesne. Nouv. éd., corrigée. Paris, 1740.

[3] Ambroise Paré: Livre VI., Chap. IV.

Among the earlier writers, Albucasis[1] is one of the few who gave any useful account of this disorder. We find in his works the following, under the caption of "Elephantiasis of the neck."

"This is a disease which appears in the form of a large tumor of the same color as the rest of the body. It frequently affects women, and may be natural or accidental, but is quite incurable. The accidental tumors are of two kinds—the one resembles a fatty encysted tumor, the other is like an aneurismal tumor, and is a very dangerous variety. It is not positively necessary to use a cutting instrument; if, however, you have carefully explored the tumor and are satisfied that it is of the nature of a fatty cyst, and that it has no adhesions to the blood-vessels, you may then incise it as you would an ordinary encysted tumor, and take it out with its envelope; but if it has no envelope, remove it entirely and then dress the wound in a suitable manner."

Coming down to more recent times, we find this description of goitre and its classification by Guillemeau.[2] "Goitre," he writes, "is a tumor which makes its appearance in the neck, between the skin and the tracheal artery, in which indolent flesh is sometimes contained, or a humor similar to water or honey, sometimes also hair or other foreign substances. There is another kind of goitre, the aneurismal, which is common in women during labor when they forcibly retain their breath."

Venette[3] prescribes the treatment of "gorge molette" which, he says, when occurring in young women, gives rise to suspicions of immoral life, or too great fondness of wine. Some women, he says, have tumors which hang down on the breast "like two pillows, and greatly interfere with the movements of the body."

In Morgagni's[4] writings frequent allusions are made to enlargements of the thyroid, and attention is directed to the fact that they occur much more frequently in women than in men.

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[1] Chap. XLIV. La Chirurgie D'Albucasis. Traduite par Dr. L. Leclerc. Paris. 1861.

[2] Les Œuvres de Guillemeau. Paris, 1612, p. 186.

[3] Nicolas Venette, De la Génération de l'Homme. Cologne, 1716.

[4] Morgagni's Works, translated by Benj. Alexander, London, 1769, Book III., Letter L, Article 37.

In Motherby's medical dictionary,[1] Dr. Hunter is quoted as having noticed that this disorder appears two or three years before or after menstruation is established, and that it sometimes "spontaneously disappears if the menstruation appears kindly."

As a specimen of many allusions to goitre, such as we find scattered through the current literature of modern times, we quote the following from the diary of John Evelyn, who observed goitre in 1646:

"Amongst these [the Swiss] inhabits a goodly sort of people having monstrous gullets or wens of flesh growing to their throats, some of which I have seen as big as a hundred pound bag of silver hanging under their chins, among the women especially, and that so ponderous as that to ease them many wear linen cloth bound about their head and coming under the chin to support it; but '*quis tumidum guttur miratur in Alpibus?*'[2] (Who wonders at goitre in the Alps?) Their drinking so much snow-water is thought to be the cause of it. But men using more wine are not so strumous as the women."

Since the time of the authors above mentioned, writers have for the most part quite neglected to take into account the influence of the uterine functions in the production of thyroid hypertrophy; indeed, this remarkable fact has scarcely been mentioned by many of them. Thus Boyer[3] and Nélaton,[4] after having pointed out, in their works on surgical pathology, the predominance of goitre in women, make no mention of pregnancy as a cause of it. The same is also true of Vidal de Cassis[5] in his treatise on pathology. The same is true of many American and English writers on general and surgical pathology.

Lebert,[6] who published in 1842 a voluminous memoir on the diseases of the thyroid gland, mentions the great frequency of goitre in the female sex, but does not notice as possible causes, gestation, menstruation, or the menopause.

[1] London, 1794.

[2] Juvenal.

[3] Boyer: Traité des Maladies Chirurgicales et des Opérations qui leur conviennent, 5e éd., t. VII., p. 61.

[4] Nélaton: Eléments de Pathologie Chirurgicale, 1854, t. III.

[5] Vidal de Cassis: Traité de Pathologie externe et de Médecine operatoire, 4e éd., Paris, 1855.

[6] Hermann Lebert: Die Krankheiten der Schilddrüse und ihre Behandlung. Breslau, 1862.

These points of etiology, however, have received some attention from other pathologists, and especially from obstetricians.

In 1842, in his treatise on the practice of medicine, Frank[1] mentioned this kind of goitre. We may also cite Prof. Grisolle[2] who, in his "Pathologie Interne," admits the troubles of menstruation and pregnancy as being well established causes of sporadic goitre.

Tardieu[3] makes note of pregnancy and the effects of parturition as causes of goitrous affections, in his manual of pathology and clinical medicine, and also in his dictionary of public hygiene and health.

Dr. Luton,[4] Professor in the Reims School of Medicine, in an article on goitre, has placed in the number of its predisposing causes, in woman, the original predominance of the thyroid gland in the sex, the difficult establishment of menstruation, puberty, pregnancy, parturition, and the menopause.

In 1845, M. Chailly Honoré wrote, in a treatise on the art of accouchement, that "swelling of the thyroid gland occurs oftener during accouchement than under any other circumstances." [5]

In 1850, Professor Natalis Guillot furnished an interesting communication to the Société Médicale des Hôpitaux on two cases of goitre in pregnant women.[6] He remarked, also, that P. Dubois had observed an example of the same at the Clinique de la Faculté.

Tarnier has noted, in his additions to the work of Cazeaux,[7] that hypertrophy of the thyroid gland is not rare during pregnancy, aside from all endemic influence.

In 1871, Dr. Lévêque presented a thesis[8] to the Faculté de Paris, which contains a large number of observations on goitre which were collected by himself or borrowed from various authors. Very many of these cases are manifestly of puerperal origin, and still the author did not establish a single conclusion from a pathogenic point of view.

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[1] Prof. Frank: Traité de Médecine Pratique, 1842.

[2] Grisolle: Traité de Pathologie interne. Paris, 1866.

[3] Tardieu: Manuel de Pathologie et de Clinique Médicales, 4e éd., Paris, 1872, et Dict. d'hygiène Publique et de Salubrité, Paris, 1862.

[4] In Nouv. Dict de Méd. et de Chir. prat.

[5] Chailly Honoré: Traité prat. de l'art des Accouchements. Paris, 1845, p. 763.

[6] Natalis Guillot: De l'Hypertrophie de la Glande Thyroïde des femmes enceintes—in Actes de la Soc. Méd. des Hôp., 6e fasc., p. 470, et Arch. gén. de Méd., 5e serie, t. XVI., 1850.

[7] Traité théor. et prat. de l'art des Accouchements, 1867, 7e éd. rev. et annoteé par S. Tarnier, p. 448.

[8] Paul Lévêque : Des Injections Interstitielles iodées dans le goître. Th. de doct., Paris, 1872.

Dr. Ollivier, fellow of the Faculté de Médecine, published in 1873 an able memoir[1] on the subject of chronic diseases of puerperal origin; this is a very valuable work and begins with a study of hypertrophy of the thyroid gland during pregnancy.

Dr. Lawson Tait,[2] of Birmingham, reported, in 1875, a number of observations on goitre in which he could find no endemic cause. These observations were of especial interest, from the fact that most of the patients had borne several children and, furthermore, in a series of twenty cases it appeared that the goitre was developed after pregnancy in all save one.

In 1876, Dr. Pastriot contributed an excellent thesis on the subject of persistent goitre depending on pregnancy and delivery.[3]

ETIOLOGY.

In studying the etiology of goitre, we shall examine, *first*, the influence of the menstrual functions and of the menopause upon its appearance and development; *second*, the influence of pregnancy and delivery upon this same affection, and *third*, shall devote some especial attention to the subject of exophthalmic goitre.

1st. Influence of *Menstruation* and *Menopause.*

No author has failed to remark that, in countries where goitre is endemic, its appearance is coincident, in most cases, with the arrival of puberty; and that the establishment of the menstrual functions plays a great part in the development of endemic hypertrophy of the thyroid gland.

It is also probably true that puberty may enter, to some extent, into the causation of sporadic goitre. Dr. Chauvin,[4] who has observed numerous cases of goitre in the Jura where this affection is endemic, says that there are cases which he attributes almost solely to the development which the various glands and the cellular tissue takes on at the period of puberty. He bases his idea upon the inefficiency of special treatment in such cases, and the spontaneous disappearance of the disease in after-years.

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[1] A. Ollivier: Etude sur les Mal. chron. d'origine puerp. in Arch. gén. dé Méd., 6e serie, t. XXI., Paris, 1873.

[2] Lawson Tait: In the Obstetrical Journal of London, June, 1875, p. 203.

[3] Jean Pastriot: Etude sur le Goître persistant dépendant de la grossesse et de l'accouchement. Th. de doct., Paris, 1866.

[4] Chauvin: Du Goître dans le Jura. Paris, 1852.

We believe that the disturbances which attend the establishment of menstruation, and perhaps a sympathetic relation between the thyroid gland and the genital organs, whose activity is awakened at this period, take very notable parts in the production of certain forms of goitres. In fine, although the pathogenesis of this phenomenon is at present obscure, these seem to be incontestable facts.

When menstruation is once established, it frequently happens that at each return of the menstrual period the thyroid gland becomes the seat of a fluxion, more or less marked, which disappears with the cessation of the catamenia. These periodical congestions are especially apparent in young women, whose thyroid glands are beginning to undergo hypertrophy.

The irregularities and disturbances of the menstrual functions, that is to say, dysmenorrhea and amenorrhea, have no less marked effects than puberty upon the thyroid gland. Under such circumstances, goitrous tumors may be developed with surprising rapidity. These tumors are generally firm and elastic, and may be extremely painful or quite insensible on pressure, but are almost always the seat of much discomfort during menstruation. They are, as a rule, quite amenable to treatment, and it is interesting to observe that these goitres frequently disappear spontaneously, and that those which develop with the greatest rapidity are often the first to disappear.

I have not deemed it necessary or important, for the illustration of my subject, to write out in detail all the cases of goitre associated with uterine disorders that have come under my observation. I will, therefore, summarize them as follows:

I have notes of fourteen cases of goitre occurring in young girls at about the age of puberty, each one of whom suffered from some form of uterine disorder. I can call to mind at least seven cases of like character of which I kept no record, but which were treated by myself for menstrual disorders, rather than for goitre, with the effect upon the thyroid gland, in some instances of staying the swelling, in others of removing it altogether, while some of the patients remained too short a time under observation to afford valuable instruction.[1]

I treated one family in which there were eight girls, whose mother consulted me with reference to the enlarged necks of all but the two eldest. The family history was certainly peculiar, and the history of one of my goitrous patients will cover the cases of the remaining five.

Each one had a pronounced goitre prior to the establishment of the menstrual function, for which the routine treatment of iodine locally, and iodide of potassium internally, had been persistently tried for the older ones, prior to coming under my observation, and afterwards by myself for a time.

For a period of eight years I treated different members of this family, and had abundant opportunity of observing the progress of the goitrous tumors. In the mean time, some of these girls had developed into womanhood, had married and given birth to children. With some of them, the thyroid gland had been so enlarged as to constitute a deformity, which had to be concealed by the mode of dress; but in every case, without exception, the goitre disappeared during early womanhood. There was with every case more than ordinary constitutional disturbance in connection with the establishment of menstruation, during which time the goitres appeared; but after menstruation was once established, the tumors ceased to increase and gradually subsided and disappeared. The deformity of puberty no longer existed in any one of the family at marriageable age.

Another singular circumstance, in connection with the history of this remarkable family, is the fact that one of the two eldest girls, for whom I was not consulted, presented a marked case of exophthalmic goitre, which continued during the remainder of her life; she dying from pericarditis at the age of twenty-six years.

There came one day to my clinic three patients, the youngest fourteen, the next older fifteen, and the third sixteen years of age; the first and third being sisters. In each of the three patients I discovered a swollen neck and menstrual disorders.

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[1] Since this paper was sent to press, Dr. Lucas, of Felicity, Ohio, has written a letter to the author, of which the following is an extract: "In September, 1880, I was consulted by Mrs. M——, aged 30, the mother of one child, regarding various ailments which upon examination I found to be due to chronic cervical endometritis with all its attendant phenomena. Shortly after this she called my attention to an enlargement of her neck, saying that the condition had been present for several months. Knowing it to be a case of goitre, for which ordinarily but little can be done, I said nothing about it, but continued to treat the cervix with alterative applications, hot-water injections, electricity, tonics, etc. She improved rapidly, and while in my office on Nov. 12th, I inquired, 'How is your neck?' 'Oh!' she replied, 'the enlargement is all gone.' Of course, I was glad to hear it, but thought nothing of the connection between the uterine disease and the goitre until I learned of your paper on the subject."

The youngest had never menstruated, although the *molimen* had been pronounced at regular monthly dates for nearly a year. Coincident with the first symptoms of menstruation, her mother observed her neck swollen and sought medical advice; iodine had been applied locally, but without benefit. At each attempt at menstruation the neck enlarged somewhat, regaining soon after its usual proportions; but at no time did the goitre entirely disappear.

The second and third cases were similar to the foregoing one. In each, menstruation was irregular and scanty, the thyroid gland began to enlarge coincident with the first symptom of menstruation, and at each catamenial date was perceptibly larger than at any other time.

These patients continued to come to my clinic regularly for several months, and were treated only with reference to the establishment of normal menstruation. It was noticed that the local application of iodine to the thyroid gland served rather to increase than diminish its size. In each instance menstruation was after a time regularly established, and the goitrous tumors nearly disappeared.

I have also observed other cases in public and private practice, of enlarged thyroids, connected with functional and organic disease of the generative organs in women, at various ages, of which I have records of but four. One patient, who was treated during a period of years by different physicians, was spontaneously cured by the cessation of the menses, at the age of forty-six, and now shows no indication of having had a goitre, although at the age of forty it was quite large.

If the etiology of such goitres as are due to the influence of puberty is difficult of explanation, on the other hand it is quite easy to understand the phenomena which accompany the disturbances of menstruation.

Under these circumstances, the thyroid gland becomes the seat of a more intense congestion analogous to those which are produced in the various organs of the economy, where they furnish points of departure for supplementary hemorrhages, such as epistaxis, hemoptysis, hematemesis, etc.

Even if apoplexy of the thyroid gland does not always ensue in these cases, yet the repeated congestion of the gland ends usually by modifying its nutrition and leading to its hypertrophy.

In the same way another fact finds a satisfactory explanation, as regards that form of goitres which makes its appearance at the time of the menopause. Every one knows how dangerous the plethora is which usually succeeds the cessation of the menses, because of the congestion occasioned in various organs of the economy. This condition may involve the thyroid gland, which being exceedingly vascular, may readily become gorged with blood.

2d. *Influence of Pregnancy and Labor.*

(*a*) *Pregnancy.*—Of all the goitres which have connection with the uterine functions, by far the most numerous are those which are produced or increased by pregnancy and labor.

Natalis Guillot was among the first of recent writers to call attention to enlargement of the thyroid gland during pregnancy. Simpson, too, notes the same fact, but as "of occasional and rare occurrence," while Holmes Coote says that it has been "not uncommonly noticed."

Furthermore, thyroid enlargement has frequently been observed in pregnancy, quite independent of the conditions usually considered favorable to its production, but it is rarely dangerous. Guillot, however, reports two cases under his own care which go to show that it may sometimes prove perilous to life itself.[1]

In the first case, a lady thirty years of age, of excellent health and constitution, found her neck becoming the seat of a slowly increasing enlargement during her first pregnancy. During a second pregnancy it increased again. Twenty-three years after, when M. Guillot saw her, respiration was greatly impeded. A few days after his first visit, the patient being nearly asphyxiated, laryngotomy was performed with immediate relief, but death ensued in two days.

The second case was that of a young woman aged twenty-nine, the mother of two children. Both respiration and voice were embarrassed, and she was subject to suffocative paroxysms—these symptoms had come on gradually from the time of her first pregnancy. She was admitted into the Necker Hospital, where one of the paroxysms of dyspnœa terminated fatally.

In the case of pregnancy, the product of conception exercises an irritative action, which, at first confined to the organ which contains it, soon affects to a greater or less extent all parts of the maternal organization, producing in the breast a useful physiological hypertrophy, but causing, however, a modification of nutrition, the persistence of which may result disastrously.[1] Thus the heart, as Dr. Larcher was first to observe, may become the seat of an hypertrophy, involving chiefly the left ventricle. The blood, the liver, the kidneys, the digestive apparatus, especially the stomach, the bones, the integument, and the nervous system, are all more or less profoundly modified.

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[1] Arch. gén. de Méd., t. XVI., 1860.

With such changes as these, it is not at all astonishing that the thyroid gland receives its share of the changes induced by the growth of the fetus. "Not rarely, indeed," says M. Tarnier, "the thyroid gland hypertrophies during pregnancy from other than endemic influences. This hypertrophy is considerable, but produces no discomfort. Some women complain, however, of the swelling which deforms their necks. This enlargement of the thyroid gland diminishes somewhat after delivery, but it rarely disappears entirely."

But although the tumor generally diminishes or remains stationary after delivery, in other cases it increases in size, either progressively or by successive impulses, furnished by later pregnancies.

Let us now inquire into the nature of the relations which exist between goitres and pregnancy. Do we in this simply observe an effect of the suspension of the menses during gestation, and seek in a compensatory fluxion the point of departure of a goitre? We discard this idea altogether, understanding that in pregnancy the suspension of the menstrual flow is the general fact, and the goitre the exception.

It appears to us more rational, since we cannot grasp the law of the phenomenon, to admit a sympathetic fluxion making its appearance at the thyroid gland; a fluxion sufficiently pronounced and prolonged to alter the character of this organ, which remains hypertrophied.

(*b*) *Labor.*—Causes purely mechanical preside over the appearance or development of the goitre which results from parturition.

The repeated efforts of labor, interfering as they do with the returning circulation, produce hemostasis in the thyroid gland, and communicate to it an abnormal pressure sufficient to produce the consecutive dilatation and relaxation of the veins of the gland. The thyroid gland, in point of fact, in its relation to the right side of the heart, fulfils an office similar to that of the spleen in its relation to the portal system. It is a reservoir always ready to receive blood whenever the circulation is obstructed in the superior vena cava.

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[1] I have, in a former paper, "The Causes of Sudden Death of Puerperal Women," Trans. Amer. Med. Assoc., 1878, alluded to the heart changes of pregnancy.

This pathogenic influence is not exclusively confined to the efforts of parturition, for any other cause or effort producing sufficient swelling of the neck, by obstructing the venous circulation, is capable of producing a goitrous tumor.

Thus Dr. Cassan cites a case of indolent swelling at the left side of the thyroid gland, occurring in the person of a maiden lady forty-five years of age, as the result of severe exertion in raising a weight of forty pounds twenty-four hours previous.

Hahn and Brunet also speak of the influence that severe muscular straining may have in the production of goitre.

The custom that certain women have of carrying heavy burdens on the head has been responsible for many cases of goitre in Germany and France; also excessive muscular efforts, and especially the fatiguing labors of vine culture, which oblige the laborers to work in a stooping position with their heads bent down.

Dr. Luton says also that singers and performers on wind instruments are predisposed to goitre, while the cries and efforts of women in labor act in the same way. When we consider the violence of these last efforts, we can easily comprehend the important part which they play in the causation of goitre. Under these circumstances, the goitrous tumor affects two principal forms; the one in which it is produced immediately, and the other, more frequent form, in which the swelling, at first of slight extent, increases gradually till it attains considerable size.

The goitre which appears suddenly in the course of labor has been observed by different medical authors. In endemic countries, a woman may have a goitre which increases so slowly, and is so masked by fatty cellular tissue, that she is altogether ignorant of its presence, until all at once in the midst of labor it takes on an enormous development; but the phenomenon may also be exhibited in cases of tumors both old and large. It is probable that this kind of goitre is produced by the rupture of some vessels and the effusion of blood throughout the gland—a condition which is frequently termed thyroid apoplexy.

In connection with this effusion of blood, producing a true goitre, we ought to mention the sudden infiltration of air into the cellular tissue surrounding the trachea, producing the air goitre of Larrey.

The progressive form of puerperal goitre is much more common than the sudden form. In this form the tumor begins with the efforts of labor, and continues to increase more or less rapidly after delivery.

We have passed in review the series of genital functions as regards their connection with goitre; but perhaps it still remains for us, in order to make the subject complete, or as complete, at least, as the narrow limits of our work allow, to study the influence of coition and nursing upon the increase of the thyroid gland.

Coition, while it enters into the pathogenesis of goitrous tumors, seems, however, to have an especial effect upon the thyroid gland, as Lorain affirms in his article on nursing, in the Dictionaire de Médecine et de Chirurgie Pratiques.[1] "It is certain," he says, "that the necks of young girls swell after coition." The ancients exaggerated the importance of this swelling, which they regarded as a sign of lost virginity. Thus in Catullus we find reference made to a common practice among the ancients, of measuring the neck of the newly married woman after coition, in order to observe whether the thyroid gland had enlarged, and thus prove her moral character previous to marriage.

> "Non illam nutrix oriente revisens,
> Hesterno poterit collum circumdare filo."[2]

Again, nursing is not without its influence in producing goitre; many contemporaneous authors have noted its connection with this sort of tumor. Unfortunately, published observations on this subject, if there are indeed any, are few, and we regret that we must pass over a subject which might be the object of useful and interesting research.

3d. *Exophthalmic goitre*, as has already been said, occurs more commonly in women, and its phenomena are usually very well marked. The first symptoms are palpitation of the heart and a rapid pulse, which often beats one hundred and forty times in a minute ; together with this, various other signs of nervous debility appear. These symptoms are followed by enlargement and pulsation of the thyroid gland, with violent beatings of the carotid arteries, and finally, an unnatural prominence of the eyeballs begins to be perceptible, and in some cases, indeed, the globes of the eyes appear to protrude from their orbits. On palpation of the tumor, a vibratory thrill may sometimes be felt, and sometimes a musical bruit can be heard by means of the stethoscope.

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[1] Tome I., Art. *Allaitement.*

[2] The nurse, visiting her again in the morning, will not be able to measure her neck with the string of yesterday.—CATULLUS EPITHALAMIUM.

Notwithstanding the apparent gravity of these symptoms, this disease is rarely fatal, unless associated with organic disease of the heart.

As for the etiology of the disease, various causes have been assigned ; prominent among which are amenorrhea, dysmenorrhea, anemia, chlorosis, long-continued hemorrhage from piles, and bilious diarrhea. Dr. Stokes says that, in young women, mental anxiety and the effect of terror may produce it, and he cites a case of such a tumor occurring in a lady who had previously enjoyed excellent health. This author supposes that the disease is a form of cardiac neurosis which may lead to organic disease, and that the nervous excitement is possibly propagated to the arteries of the neck, as he thinks that their pulsation is more than can be accounted for by the force of the heart.[1]

Prof. Laycock[2] is of the opinion that the symptoms are due to neurosis of the cerebro-spinal tract, or rather of several vaso-motor centres in the spinal cord, while the tumor, he thinks, is produced by a lesion of a paralyzing kind of the trunk of the sympathetic.

Dr. Hanfield Jones[3] thinks that the fundamental malady is debility, especially of the nervous system, which, by affecting different vasomotor nerves, gives rise to the various symptoms. M. Trousseau[1] taught that it is a neurosis having its proximate cause in a change of the vasomotor apparatus, and that anemia follows rather than precedes the characteristic symptoms. Arthur Wynne Foote[2] describes a severe case of exophthalmic goitre, occurring in a girl eighteen years of age, as the result of a violent moral impression. Immediately after a fright, she began to experience palpitations. Ten days later, swelling of the thyroid gland was appreciable, and exophthalmia appeared. At the same time that impressionability of its character was exaggerated, menstruation was completely suppressed, and the breasts, which were well developed, underwent almost complete atrophy. The tumor, after remaining stationary for several months, slowly disappeared under the influence of treatment.

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[1] Dr. Pepper, of Philadelphia, in a recently published paper read at a meeting of the Pennsylvania State Medical Society, on exophthalmic goitre, under the head of symptoms writes as follows: "Menstrual disorders are among the most frequent. It would appear also that they occasionally act as the cause of exophthalmic goitre, since it seems probable that the prolonged reflex irritation from a diseased uterus acting upon a system predisposed, may serve as the exciting cause."—*Cincinnati Medical News* for November, 1880.

[2] British and Foreign Medical and Surgical Review, January, 1864.

[3] Proceedings of the Medical and Surgical Society, 1861.

Dr. Warburton Begbie[3] says that albuminuria is almost always concomitant with exophthalmic goitre, and that it is met with, not only in the advanced period of the disease when the heart is disturbed in its functions, but almost at the very beginning of the attack; as for the rest, it is a transient symptom and one which does not seem connected with organic disorders of the renal substance; but this remarkable phenomenon is observed: that while it is temporary, it is generally very abundant, so much so that one would almost think he had a case of Bright's disease with which to deal, were it not that the other signs of renal disorder are wanting. Dr. Geo. Johnson, of London, has also observed this phenomenon.

But even when albumen is quite abundant, the prognosis of the disease is not materially changed. In the opinion of this author, the nervous system which causes phenomena of congestion and fluxion about the eyes and in the thyroid body, in exophthalmic goitre, takes likewise a great part in the phenomena which are exhibited in the kidneys, and which are of the same class.

A case of exophthalmic goitre with insanity was detailed in the *Journal of Mental Science*.[4] This was the observation of an individual affected with exophthalmic goitre, who, in the course of the disease, was seized with a very violent maniacal agitation which persisted till death. No autopsy could be made, but it was Dr. Robertson's opinion that the intellectual symptoms were dependent upon cerebral hyperemia. Two similar cases have also been reported; the one by Dr. Morrell Mackenzie,[1] the other by Prof. Meynert.[2]

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[1] Clinique méd. de l'Hôtel-Dieu.

[2] Revue des Sc. Méd.

[3] Albuminuria in a Case of Vascular Bronchocele and Exophthalmos. Edinburgh Med. Journ., April, 1870, p. 80.

[4] Alex. Robertson: Journal of Mental Science, Jan., 1875.

In all the cases of exophthalmic goitre which I have observed, some menstrual or uterine disorder has always been present. I shall allude to only two cases in this essay.

One was that of a public patient, and was made the subject of several clinical lectures during the many months while she attended my gynecological clinic.

At her first visit, she was in her sixteenth year, the exophthalmos was of pronounced character, with a pulse ranging from 110 to 120 beats per minute; anemic murmurs could be heard in the carotids, and the musical bruit was distinct over the enlarged thyroid gland. The patient sought relief only for her deformed neck, seeming to attach but little importance to the other manifestations of her disease.

From her mother I learned that she menstruated for the first time at the beginning of her fourteenth year, and that the function remained perfectly normal for about one year. The girl was attending school, where she studied diligently, and when out of school exerted herself beyond her strength in helping to support the family.

From some cause attributed by the mother, as is usually the case, to exposure to cold, the menses suddenly ceased, since when they had not reappeared. For the last six months the neck had been enlarged, for which difficulty she had already sought medical aid. All the treatment had been directed to the goitre, while the amenorrhea had received no attention whatever.

On palpation, the goitre seemed to be of the vascular variety, giving no evidences of glandular growth. The girl continued to be a regular and faithful attendant at my clinic, so that I was enabled to study with considerable attention and care the relations existing between symptoms and disease.

Treatment was directed to the amenorrhea. The patient was ordered to be taken from school, and digitalis, ergot, mineral acids, bitter infusions, and, later, iron and strychnia, were prescribed. There was a gradual improvement in her condition, menstruation was restored, and after its periodical return was fully re-established, the goitre gradually disappeared and the eyeballs became less prominent; so that when I last saw her, there was no perceptible deformity save, perhaps, a slightly unnatural appearance about the eyes.

The remaining case of exophthalmic goitre was one of more than usual interest to me, as the patient's parents were old acquaintances of mine, and her physician was one of my earliest medical friends; I was thus enabled to learn of everything in her history having any bearing on the case. When I first saw her, she was in her eighteenth year; at that time the eyeballs protruded so that the lids could not cover them, making it necessary to apply a bandage at night to protect the eyes from dust. The thyroid gland was very much enlarged, the pulse registered 140 beats per minute, and, during nine visits made in three days, I never found it less than this. The patient's body trembled and shook like one suffering from paralysis agitans, there was also mental and nervous hyperesthesia, the patient being extremely excitable and erratic, and altogether like one insane. The previous history was as follows: While engaged in study she overtaxed a system naturally frail and weak, paying no attention to ordinary hygienic rules. Family troubles of a peculiar character arose which deeply affected her. At this juncture she exposed herself carelessly at a menstrual period, causing total suppression of the menses. Following the initiation of amenorrhea, there was indication of chorea; then, two months later, it was observed that the thyroid gland was perceptibly enlarged, and a little later still, protrusion of the eyeballs was observed. For many months she received a careful treatment which had for its object the reduction of the thyroid gland; but, as might be expected, this was without avail. For eighteen months, so her physician informed me, he never found the pulse less than 120 per minute. The amenorrhea continuing to be a prominent symptom, treatment was instituted to restore the menstrual function. While her condition was at its worst, I was consulted, and I continued to see her, from time to time, during a period of two years. Without giving the details of the treatment, it will suffice to sum it up in a few words; digitalis, arsenic, ergot, strychnia, and iron were the chief drugs employed. The most pronounced effect was caused by the ergot, which exerted a controlling action on the heart of marked character and at the same time seemed to act as an emmenagogue. Change of scene, cheerful surroundings, and everything that could be done in the way of moral treatment was instituted. At first, only slight improvement was manifested; then later on, symptoms of returning menstruation appeared, but there was no decided improvement until that function had fully returned, and then the goitre began to decrease—the pulse became less frequent, and the eyeballs less prominent. After improvement had fairly begun, it moved on with rapid strides until the patient was restored to health. She has since married and borne children, and with the exception of a very slight unnatural prominence of the eyeballs, no one seeing her now would observe anything about her suggestive of exophthalmic goitre.

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[1] In Trans. of Surgical Society for 1868.

[2] Psychological Annals.

PATHOLOGY.

The thyroid gland is composed of glandular elements in the form of closed vesicles contained in a cellulo-fibrous stroma, through which ramify a considerable number of blood-vessels.

Group I.—This comprises the simple goitres, constituting true thyroid hypertrophy or fleshy goitre. In this form the anatomical structure has remained normal, the vesicles are closely approximated, but are of equal size; the vessels are multiplied, but never congested; on puncture a little yellowish syrupy liquid flows out; the lobes have acquired a proportional but not marked development. It is this variety of goitre which is known in England as the "swelled" or "Derbyshire neck," and in France as "*grosse gorge*," or "*gros cou*."

Some authors include still a second variety, which is constituted by an amplification of each of the elements of the organ, as if you saw the normal tissue through a magnifying glass.

Group II.—This is a much more important group than the foregoing one, and comprises four varieties of goitre, each of which is characterized by the hypertrophy of one of the elements of the gland. The varieties are the following: 1st. Glandular. 2d. Cellulo-fibrous. 3d. Colloid, or cystic. 4th. Vascular.

First variety—Glandular goitre.—The multiplication of the glandular elements constitutes the distinctive characteristic of this variety, which presents, on microscopical examination, follicles filled with fluid and cells.

Second variety—Cellulo-fibrous goitre.—The cellulo-fibrous structure presents also alterations which are peculiar to itself. Its predominance over the glandular element constitutes the cellular goitre, which takes on a rapid development, and may acquire an enormous size. Schmaltz has well described this malady which he designates by the term "struma cellulosa." This goitre, he says, is formed of cellular tissue filled with a gelatinous liquid. The glandular portions are thickened, shrivelled, and atrophied. The cellular goitre has no well-defined limits; it is soft and yielding to the pressure of the finger, but it is not met with in adults except in a sporadic form, and may be attributed especially to the efforts of childbirth.

Dr. Bach had an opportunity to observe this anatomico-pathological form of goitre in a woman who died at the age of sixty in the hospital of Strassburg:

"This woman," he says, "was not born in a goitrous country; she tells us that, following confinement, her neck acquired an enormous size in the course of a year. The tumor occupied all the anterior part of the neck, and reached above the hyoid bone up toward the angle of the jaw, and descended thence as far as the sternum. The development was more considerable on the left than on the right side. At the autopsy which was made of this goitrous tumor, the liquid contained in the cells was not of uniform character. Some of the cells contained a serous substance, others colloid matter, or blood; in some places the capsules were, for the most part, not at all altered, but they were, so to say, disaggregated by the interposition of laminæ of degenerated cellular tissue. It was impossible to inject the arteries; the venous plexuses were greatly dilated, and, furthermore, fibrous tissue was found in some places."[1]

At other times, in place of the complete hypertrophy of the cellular stroma, hard whitish nuclei of fibrous tissue are found scattered through the gland filling up the follicles.

Finally, goitre in pregnant women may be caused by the hypertrophy of the fibrous and glandular elements which the gland contains. The case related by Natalis Guillot in 1858, to the "Société médicale des hôpitaux," belongs to this variety. We reproduce it here:

"The tumor was firmer in consistency than usual. This was due to the abundance of fibrous tissue forming throughout the tumor thickened and multiple septa of considerable size, but of less density than ordinary fibrous tissue.

The character of the tissue comprising these septa was the same as that attributed to fibrous tissue; it was represented by a series of rectilinear elements, of which some still bore traces of a nucleus. The elements crowded closely together, formed partitions and outlines of cells of unusual diameter.

These cells were in many places more than three centimetres in diameter, in others from .002 to .003 of a millimetre, which represented an intermediate series ranging from the normal diameter to the size I have just mentioned.

The walls of these cells were whitish and pearly in appearance, and although not very dense, they were in reality composed of fibrous tissue, the character of which the microscope revealed very nicely. The surface of the small cells formed by these envelopes of fibrous tissue was probably covered by epithelium, because an appearance of this was seen in the globules contained in each cell.

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[1] Bach: In Mém. de l'Académie de Méd., 1855.

But the larger cavities which deviate from the normal condition did not contain a single trace of epithelial cells; nothing was observed here but a series of transparent granulations, nucleated or non-nucleated, such as are ordinarily contained in the normal cells of the thyroid gland.

Except the size produced by this excessive accumulation of the anatomical elements of this thyroid hypertrophy, everything remained the same as in an ordinary thyroid gland.

The sole difference was the absence of epithelium in the cavities which were most modified in appearance. We are justified then in regarding this lesion of the thyroid gland as an hypertrophy of the fibrous and granular elements which constitute this organ."[1]

We may also mention, in passing, the lardaceous thickening of the cellular structure which is an indication of its so-called chronic inflammation. Its partial or general ossification has been remarked by various observers. The bulletins of the Société Anatomique of Paris contain many examples of this kind.

Third Variety—Colloid or Cystic Goitre.—In the normal condition of the closed vesicles, they are filled with a colloid substance. When this substance begins to increase, the vessels which contain it dilate. When the goitre is opened, the thyroid gland is seen to be hollowed out by numerous areolæ. It is this particular condition of the gland that has been described under the name of colloid goitre.

If one of these dilated vesicles develops to unusual size in such a manner as to efface the others smaller than it, the goitre becomes truly cystic. We find an example of goitrous cyst developed under some peculiar circumstances, as reported by Dr. Luton.[2]

"The goitre was of notable size, forming on the right side of the neck a well-rounded tumor, which was quite movable and as large as a hen's egg, while the patient's emaciation made it appear still larger. In studying the tumor more closely, I observed that it was formed by a cyst, with fibrous walls containing a colloid substance. The microscope did not reveal a single defined anatomical element, but only the presence of cholesterine in rhomboidal tablets. I am sure that the tumor was at first solid; the puncture which I made to introduce the solution of iodide of potassium left no doubt in this regard. Afterwards the tumor underwent retrogression, and for a long time I thought it had disappeared; but probably the envelope of the goitre served as a point of departure for the secondary cyst which I found at the autopsy."

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[1] Natalis Guillot: Mem. cité in Arch. gén. de méd.

[2] Luton: Nouv. obs. d'injections de substances irritantes dans l'intimité des tissus malades. In Arch. gén. de méd., 1867, 6e serie, T. ix.

The goitrous cysts of Bach appear to proceed from three different sources:

1st. From a pathological blastema, the product of exudation and inflammation.

2d. From an apoplectic nucleus, passing through various forms.

3d. From the degeneration of one or more glandular capsules, caused by the colloid substance.

The cysts of the thyroid gland have a wall and a cavity, a sheath with its contents, the same as other cysts. The wall is sometimes delicate, sometimes thick; it is formed of cellular tissue, incrusted sometimes with calcareous or cartilaginous plaques. The cavity is filled with a liquid which may be transparent and colorless, or of various colors, as yellowish, greenish, or blackish; sometimes it is composed of blood which has undergone various retrogressive metamorphoses; sometimes it is purulent.

These cysts, generally unilocular, may occasionally become multilocular: in the latter case one of the cavities is larger than the others.

Fourth Variety—Vascular Goitre.—This term is justified by the development which the vascular system undergoes. The arteries are considerably dilated and sinuous, as is the case with aneurismal varices; the veins are swollen, and the vessels in general form a confused network. This is the sanguineous goitre of Tardiveau, the aneurismal goitre of Richter.

Two kinds of goitres have been distinguished, according as the dilatation affects the arteries, forming aneurismal goitre, or the veins, forming varicose goitre.

In most vascular lobules, says M. Cornil, the vessels exhibit sac-like dilatations. If we remember, in addition, that they have frequently been found weakened, we can easily understand that, under the influence of efforts, such as those of parturition, a blood-vessel may be ruptured, and the blood flowing out may cause what is known as thyroid apoplexy, which may give rise to the development of a cyst, as we have already said.

Perhaps we should make mention of the emphysematous goitre which Larrey calls the air- or pneumo-guttural goitre. It consists, according to this author, of one or more air-tumors which are formed at the front of the neck, especially at the sides of the larynx. These tumors may sometimes reach a considerable size, and may be due simply to the struggles that are made or the cries that are extorted by the throes of childbirth.

In Graefe and Walter's journal (Berlin, 1837), Heidenreich cites several observations of air-goitre, of which one especially seemed due to accouchement.

This air-goitre, not being connected with the cysts of the thyroid gland, is no longer classed by most authors with proper goitres, but is counted among the cysts of the neck.

After having explained these principal varieties of goitre, it should be said that it is a rare thing to find these types in a pure state, but the different varieties shade into each other so as greatly to modify the appearance under which the goitre is presented.

SYMPTOMS AND DIAGNOSIS.

The signs of a goitre connected with the uterine functions do not differ from those of an ordinary goitre.

These tumors are not usually as large as those of the endemic variety, and produce, much less frequently than the last, the accidents of compression, which are manifested by raucity of the voice, or sometimes by aphonia, wheezing, dyspnea, and dysphagia.

One important thing to observe is that the mental degradation that accompanies the endemic goitre is not observed in this; but the patients present a very satisfactory mental condition.

We ought, however, to note the progress of this affection which, when it is connected with menstruation and its troubles, is sometimes transitory and periodic, sometimes slow and progressive, occasionally subject to periodic exacerbations which are signalized in advance.

As for puerperal goitre, it usually appears toward the third or fourth month of pregnancy, and in its development assumes several distinct forms, according to M. Ollivier,[1] who says:

"One form, the subacute and transitory goitre, develops slowly; sometimes, indeed, it comes without being noticed. It is not painful, and the woman usually arrives at term without having experieneed any difficulty in respiration. After delivery it becomes smaller, and after the lapse of some weeks or months no traces remain of it.

"A second form develops very rapidly, and may give rise to suffocation, but goitres of this variety are rare.

"Finally, there is a third form, the chronic goitre. Sometimes the swollen thyroid body remains stationary after delivery, or even increases somewhat with each successive pregnancy. At other times, instead of remaining quiescent, it continues to develop, and, at a period more or less remote from the pregnancy during which it had its origin, it increases rapidly in size, threatening to compress the trachea and produce suffocation and death. The two cases reported in the works of Natalis Guillot[2] are striking examples of this variety of chronic goitre."

These goitres, after a longer or shorter time, may inflame and even suppurate. In J. L. Petit's works we find an example of this mode of termination, as he observed it in a patient.

When the goitre is produced more particularly by delivery, it often happens that it begins instantaneously, but its subsequent progress does not differ from that of the preceding varieties.

The idea of a thyroid tumor of greater or lesser size, not inflammatory, especially when it is sporadic and occurs under the circumstances which we have passed in review, leads us to the following considerations:

First.—It cannot be a case of emphysema, for it does not on palpation give the characteristic crepitation.

[1] Porcher, op. citat., p. 58.

[2] Op. citat.

Second.—We know that excrescences and ganglionic enlargements are not found in this situation.

Third.—We do not regard it as an acute inflammation of the thyroid body, for it is distinctively characterized by a diffuse swelling which is painful on pressure or movement, and is accompanied by a marked fever with the usual train of symptoms. However, an inflammation, severe at first, may terminate in induration and leave a swelling which differs in no wise in appearance from a goitrous tumor.

Fourth.—Aneurism of arteries in this region (carotids, etc.), although they may present phenomena of compression and suffocation quite analogous to those of thyroid hypertrophy, are easily distinguished by their pathognomonic signs: the movement of expansion, the vibratory thrill, etc.

Fifth.—We must remember that cancer of the thyroid body is of very rare occurrence, and is usually dependent upon a neighboring cancer. The scirrhus and encephaloid are the ordinary varieties met with, while the lancinating pains and the rapid propagation to adjacent organs which mark these varieties furnish us with valuable diagnostic aid. Prompt surgical intervention generally suffices to arrest their development, at least in the commencement of the disease. Swelling of the thyroid body in exophthalmic goitre, or Graves' disease, is one of the principal symptoms of this affection, the clinical syndrome of which is completed as follows: cardiac hypercinesia, arterial ectasis, and exophthalmia. But this disease which is produced, according to the theory of Prof. Jaccoud,[1] by the paralysis of the vasomotor, cardiac, and cervical nerves, differs entirely from simple goitre in this respect: that so far from being aggravated under the same circumstances as the last, it has even reached a cure under the influence of pregnancy, as attested by the observations of Charcot, Trousseau, and Corlieu.[2]

After having recognized the goitrous nature of thyroid hypertrophy, we ought to study the pathological anatomy of the case in order to determine its variety.

Its consistency, hard or spongy, determines whether it is a fibrous or cellular tumor. If we plainly discover fluctuation, then the goitre is cystic. And finally, the vascular goitre may be revealed by its throbbing and vibratory thrill. While these may be mentioned as distinctive signs, it is well to remember that we rarely meet with tumors of the precise nature here defined. The varieties are generally combined in such ways as to render precise diagnosis very difficult.

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[1] Jaccoud: Traité de Pathologie interne, 5e éd., 1872.

[2] Corlieu: Gazette des Hôpitaux, 1863.

TREATMENT.

1*st*. *Prophylactic Measures.*—Godelle and Valentin have made use of an inextensible cravat, which, by its constant pressure upon the thyroid body, prevents its expansion. In the same way Boyer has made use of bags filled with an inert powder, and Morand of a collar. It is impossible to say how useful these various appliances may be, but this much is certain, that the profession is slow to adopt them.[1]

According to the Prefect of Haute-Savoie, goitre is no longer endemic in ten of the three hundred and nine communes which compose this department where goitre was formerly very widespread. This happy state of affairs has been brought about by various hygienic measures, such as cutting down forests to render the atmosphere less humid; giving proper attention to the ventilation of houses; by using suitable water for drinking and domestic purposes, especially rain-water, to hold which large cisterns have been constructed.

Prior to 1818, goitre was exceedingly common in Valois, one of the Swiss cantons. In that year, from the bursting of a lake high up in the mountains, a valley near Martigny was devastated. Before the inundation, the soil of the valley was wet and marshy, and goitre and cretinism flourished; but the flood bringing down from the mountains three feet of alluvium, entirely changed the character of the land, and goitre and cretinism almost disappeared.

Goitrous school children have been required to take pastilles containing a weak decoction of walnut leaves, and as a result of 5,000 children subjected to this simple treatment, 2,000 have been cured, 2,000 more sensibly ameliorated, while only 1,000 have received no benefit at all.[2]

Hahn has remarked this singular fact, that at Luzarches, where goitre was formerly very common, among the women especially, it now no longer exists, save in some families in which it is hereditary. He attributed this to the fact that the women and children are no longer engaged in the manufacture of lace, which in the last century was their chief employment. This kind of work obliged them to stretch out the neck as they worked their designs on the lace cushion, and hence the frequency with which goitre appeared among them.

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[1] Porcher, op. citat.

[2] Académie des Sciences, Paris, Nov., 1868.

Virchow, in a small work on the subject of school hygiene, says that goitre frequently makes its appearance in the persons of young girls above the age of eight years, after a year spent in study. Under these circumstances, the disease is probably due to the cramped position of the children as they bend over their books.

In much the same way, the regimental coat-collar, formerly in use in the French army, predisposed to the development of goitre in the soldiers; for since its modification there has been a very notable diminution in the frequency of its appearance.[1]

In this connection, we may notice a case reported by General Morin, at the Academy of Sciences, Paris, of two laborious young officers, who were so much occupied in copying plans that they remained bent over their work for many hours, with their heads inclined towards the paper, and their necks tightly confined by the high collars of their regimental coats. In both of these men, goitres were developed, which disappeared on quitting the work, but which reappeared whenever they attempted to resume their task.

Though not strictly in place, we may also mention a singular occurrence of epidemic goitre, which affected two hundred and eighty individuals out of fourteen hundred, composing the effective force of the St. Etienne garrison. The causes were doubtless forced marches in a mountainous country, and an insufficient supply of food. That forced marches and the ascension of mountains have the effect of producing congestion and subsequent enlargement of the thyroid gland, is abundantly proved by the army statistics of France.

There is one very important consideration which should not be lost sight of; it is this: that when a goitre is developed in a woman during pregnancy, she ought never to nurse her child, for nursing may of itself suffice to develop the affection.

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[1] Reported by Dr. Michaud, in Gaz. Méd., Paris, Nos. 2 et 4, 1874.

In the same way, women who are affected with thyroid hypertrophy, ought to avoid everything which has a tendency to check the menstrual flow, such as violent emotions, or exposure to sudden changes of temperature.

2d. Therapeutic Measures.—The best of all remedies for the cure of goitre are, *first*, a change of climate to a country where goitre is not endemic, and *second*, a strict observation of hygienic and dietetic laws.

Of medicines, an endless variety has been proposed and tried with as various degrees of success.

The sponge was among the earliest to find favor in the treatment of goitre, and was first recommended, according to Vidal, by the Arabians who used the ashes. These have been administered under various forms, both internally aud externally ; and their use has been continued until comparatively recent times. In France, M. Bouchardat recommended that, in burning the sponge, care be taken that the ashes retain the reddish color of the unburned article. Ashes of *fucus vesiculosus* have also been extensively employed ; they were used by Roussel under the name of *éthiops végétal.* The ash of sponge was frequently used as a topical application, and constituted the base of many electuaries, lozenges, and potions. The most celebrated men have not hesitated to make use of such preparations, and the names of some of them are still found in the Pharmacopeias of France. Of these, the " sency powder " obtained so great a reputation that the French Academy of Medicine demanded that the government purchase the secret of its composition and make it known to the public.

Iodine was discovered in 1813, and O. Coindel was the first to introduce it into medical practice for the cure of goitre ; since when it has been extensively adopted by the profession, and with considerable success.

The hypodermic injection of iodine seems to give the best results of all, but it should only be employed in a case of humoral goitre. If the goitre contains many septa, the injection will scarcely penetrate them all, and it is also to be remembered that, in cases where there is a cyst, with thick, hard, and even cartilaginous walls, the injection may have no effect at all. When injected, the iodine serves not only to produce an adhesive inflammation, which causes the walls of the cyst to adhere to each other, but it also softens the cystic walls themselves.

For interstitial injections with the hypodermic syringe, the formula used by Dr. Ritter is perhaps as eligible as any; it consists of the following ingredients:

Distilled water, ...	40 ccm.
Tinct. of iodine, ...	20 “
Iodide of potassium, . . .	1 gram.

The strength of this injection may be altered by increasing or diminishing the amount of the tincture of iodine to suit the exigencies of the case.

M. Bouchardat has recommended the following formula:

Tinct. of iodine, . . .	8 ccm.
Iodide of potassium, . . .	1 gram.
Camphor water, ...	15 ccm.
Rose water, ...	30 “

Others employ simply a saturated solution of iodide of potassium.

M. Monod advises the use of pure alcohol in place of iodine solutions; it is his practice to draw out a certain quantity of the cystic liquid, and replace it each time by an equal amount of alcohol.[1]

Ordinarily a single injection of one of the iodine preparations suffices for a cure; but if there is need of a second one, the course to be pursued is to wait until the fluxionary movement and the acute phenomena have completely disappeared.

Dr. Browne[2] reports six cases of goitre cured by hypodermic injections of iodine, together with the employment of a seton.

In goitres of a vascular character, it is necessary to do away with all employment of iodine injections, and have recourse to the perchloride of iron, which was successfully employed by Alquié of Montpellier in 1853, and which is also highly recommended by Dr. Luton.

Dr. Morrell Mackenzie has employed this substance in fifty-nine cases of cystic goitre, of which he reports fifty-six cures. The only case of death was attributed to the entrance of air into the veins.

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[1] Porcher, op. citat., p. 45.

[2] Dr. Browne, British Medical Association Reports.

[3] Mackenzie, Lancet, 1872.

Prof. Richter and Dr. Anger, surgeon of the Tenon Hospital, have injected with success a solution of the chloride of zinc into the vascular cysts of the thyroid gland.

Dr. George Johnson, of London,[1] reports a case of exophthalmic goitre, attended with albuminuria, in which a cure was effected by the use of bromide of potassium, digitalis, and iron.

Digitalis associated with camphor and bromide of potassium is considered by Dr. Moore as indicated in goitre arising from menstrual disorders.

Dr. Arthur Wynne Foot[2] reports a case of exophthalmic goitre, in which cure was produced by digitalis, associated with ergot of rye and sulphate of quinia, together with iron tonics. This author insists on the necessity of administering digitalis in large doses, a precept which Trousseau has already formulated.

Electricity has been very highly recommended in the treatment of exophthalmic goitre, due to lesion in the grand sympathetic, and it certainly seems to have been productive of most excellent results. Two cases of cure are reported by Dr. Benedikt.[3]

Another very interesting case is reported by Dr. D'Ancona.

The patient, a girl of 17 years, was afflicted with an exophthalmic goitre, her neck measuring forty centimetres. The menses had not appeared for four months. The eyes protruded so that the lids could not close, and the pupils were greatly dilated. Digestion was impaired, and the patient was emaciated, feeble, and extremely nervous. An electrical current produced by ten elements of a portable apparatus was employed in the treatment, and the poles of the battery were applied over the cervical ganglion of the great sympathetic on each side of the neck. This treatment, of which the patient was quite tolerant, was continued during five consecutive months, and was associated with the administration of moderate doses of Fowler's solution. Amelioration was at once apparent, appetite and strength returned, the bodily weight increased, the eyes became less protuberant, so that the lids could easily close, the circumference of the neck was reduced to thirty-five centimetres, menstruation was re-established, and the condition of the nervous system was greatly improved.

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[1] Dr. Geo. Johnson, quoted by Dr. Warburton Begbie, in Edin. Med. Jour., April, 1870, p. 80.

[2] Op. citat.

[3] Oesterr. Zeitschr. für prakt. Heilkunde, April, 1865. Noted in Dict. des Progrès des Sc. Méd., Année 1865.

[4] Giornale Veneto de Scienze mediche, No. 51, 1876. Noted in Dict. des Progrès des Sc. méd., Année 1877.

Dr. A. D. Rockwell, of New York,[1] is an earnest advocate of the efficacy of electricity in the treatment of exophthalmic goitre. With regard to the character of the current to be used, he says that "every physiological consideration, and all experience points to galvanism as pre-eminently indicated;" and adds that the application must not be local but general. In support of his assertions he details the accounts of several instructive cases occurring in his own practice.

Prof. Pepper, of Philadelphia, urges the use of injections of ergotine as extremely useful in the treatment of thyroid hypertrophy. He advises a solution of 96 grains of ergotine in an ounce of water, of which 50–75 centigrams may be injected every two or three days; this, he says, will harden the tumor and reduce its size.[2]

Iodo-tannin and iodoform are also highly recommended, as is also the double iodide of mercury as a topical application.

In a case of goitre where death was threatened by dyspnea, and in the treatment of which iodine, antispasmodics, and abstraction of blood had failed of producing any useful result, Dr. Shannon[3] claims a cure from the use of fumigations. For these he employed the following formula:

Powder of stramonium....................	3.54	grams.
Nitrate of potassium......................	1.77	"
Opium..	.05	"

In goitre peculiar to women, the writer has observed better results succeeding the administration of muriate of ammonia than from iodine or any other single therapeutic agent.

Surgical Measures.—A woman with a slowly developing goitre does not usually seek counsel of a physician while she can conceal her deformity, or while it causes her little discomfort; so that, when she comes to us, it is usually at a period of the disease when, unfortunately, both prophylactic and therapeutic measures have lost the little efficacy which we usually attribute to them.

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[1] Dr. A. D. Rockwell, in N. Y. Med. Record, Sept. 11th, 1880.

[2] Cited by Dict. des Progrès des Sc. méd., art. goitre, Année 1879.

[3] Dr. Shannon, in Brit. Med. Journal. Quoted in Dict. des Progrès des Sc. méd., Année 1879, p. 197.

It is then necessary to interpose in a very active manner, and to institute an energetic treatment, always bearing in mind the anatomical and pathological character of the goitre to be treated.

Of the numerous measures to which surgeons have had recourse in the treatment of goitre, we will mention a few of the most prominent.

In the *London Lancet* of Dec. 2d, 1876, appeared an article by Dr. Marshall, suggesting the use of hair for drainage purposes instead of the ordinary seton. This method has been adopted by Lister, and in his hands has been productive of most excellent results. Following the example of Lister, M. D. Molière[1] has successfully employed this method in the treatment of goitre. Having a large fluctuating tumor to treat, he first explored it with a needle and finding that it contained a dark grumous liquid, he introduced into it an ordinary seton needle threaded with a few hairs. The liquid was drained away without producing any pain whatever, neither was there any appearance of fever, as is usual after the opening of these cysts. In less than a month the tumor entirely disappeared.

The ordinary seton has frequently been employed, and no doubt with good results, especially by Fodéré, Percy, Dupuytren, and Chelius.

Mr. Hey, of York, England, has also employed the seton with success. He reported a case of a young lady, 21 years of age, who had suffered from goitre since her earliest infancy. In this instance a skein of silk was used. At first there was no pain, and but little hemorrhage. For the first five weeks, there was little discharge and no material change took place. In the sixth week, there was fever and delirium which lasted forty-eight hours, then the tumor began to discharge a thin and very offensive matter, and the delirium subsided. Gradually the discharge became purulent, and finally all signs of the tumor disappeared.[2] Mr. Hey remarks that this operation was known a century ago, and was revived by Dr. Quadri, of Naples, in 1817. It was also tried by Mr. Hutchinson in 1819.

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[1] M. D. Molière, Soc. des. Sc. méd., et Dict. des Progrès des Sc. méd., Année, 1879, p. 196.

[2] Provincial Med. and Surg. Journal, Sept. 10th, 1849.

Dr. C. Rossander, of Stockholm,[1] describes two cases of goitre successfully removed by evacuation, which method he compares with extirpation. He regards this as an easy mode of operation, finds that hemorrhages can be controlled by tampons, that suppuration is not greater than after extirpation, that pus has no tendency to burrow, and finally, that in case of failure by this method, recourse can still be had to extirpation.

In vascular and aneurismal goitres, which are the seat of marked pulsation, ligature of the thyroid arteries has sometimes given good results. Thus Chelius successfully performed the operation four times in 1837. In 1852, Porta obtained success in one such operation, while Langenbeck was less successful.

Bonnet, of Lyons, has proposed operating by drawing out the tumor with the aid of a string, and then cauterizing it.

Ancelon de Dieuze, in a case of cystic goitre, produced beneficial results by means of drainage aided by emollient cataplasms and detersive injections thrown into the tumor through flexible tubes.

Ponnier extolled the use of caustics, but they have been rejected by Boyer, Rullier, and others who have given this subject special attention.

As regards extirpation, the dangers which attend it generally cause its immediate rejection from surgical practice; few surgeons, indeed, believe that the thyroid gland has ever been successfully extirpated, although cases are related by Desault, Roux, Gooch, Vogel, Theden, Hadenus, and others.

My friend and former colleague, Prof. W. W. Greene, of Portland, Maine, has extirpated the thyroid gland several times—more times, I have been informed, than any other living surgeon. His early operations were followed by recovery, but his later ones, I am of the opinion, have not been successful. I assisted him in one operation, of removal of the thyroid gland from the neck of a young girl, the patient dying with the completion of the operation.

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[1] Rossander, Stockholm, in Hygeia, 1874, p. 663. Quoted in Rev. des Sc. méd., Vol. VIII., p. 756.

In severe cases, where suffocation is imminent, celebrated surgeons have proposed section of the sterno-cleido-mastoid muscle; but as this operation has given only moderately favorable results, tracheotomy has been substituted with advantage; it may be accomplished either with a bistoury, or where profuse hemorrhage is feared, with the galvano-cautery. This operation was described in the Academy of Medicine of Paris, in 1873, by Prof. Verneuil, who has demonstrated its superiority under many circumstances. Since then, following his example, many other surgeons have replaced the galvano-cautery by Paquelin's thermo-cautery. The application of this instrument to the operation of tracheotomy constitutes one of the most useful advances of contemporaneous surgical art.

Finally, in cases of hypertrophy of the isthmus of the thyroid gland, dyspnea may be produced by pressure upon the trachea to which it soon becomes adherent. To remedy the compression and resulting dyspnea, Duncan Gibb[1] has established the practice of division, or extirpation of the isthmus. At his instigation, this operation was twice performed by Mr. Carsten Holthouse, with a favorable result in each case.

Goitre not being as common an affection in our own as in many other countries, the opportunities for its clinical study are correspondingly meagre.

In looking over all attainable literature on the subject, I find that the preponderance of French writers is very marked, as one would naturally expect.

I have undertaken to give in this paper, in as condensed a form as possible, not only my own views, but also the views of others who, by reason of the opportunities which they have had of studying every phase of goitre, are enabled to speak authoritatively on the subject.

In bringing this essay to a close, the subject of the relationship of goitre to pregnancy and diseases peculiar to women may be summed up in the following

CONCLUSIONS.

1st. There is indisputable evidence that there may be endemic and occasionally epidemic causes producing goitre in men as well as women, yet the evidence is equally indisputable that every form of goitre occurs among the latter in a much larger proportion than among the former.

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[1] Sir G. Duncan Gibb, in the Lancet, Jan. 23d, 1875, p. 120.

2d. The fact has long been established that in certain occult conditions of women, increased vascularity and enlargement of the thyroid gland may be produced as a consequence of some unusual excitement of the generative organs.

3d. Violent parturient efforts may cause the vascular form of goitre, but under the influence of pregnancy there may be gradual enlargement of the thyroid gland lasting for years; while, on the contrary, a goitre produced by one pregnancy is sometimes cured by a subsequent one.

4th. There are reasons for believing that, when goitre is caused by any disorder of the generative organs (excepting pregnancy), it is due more commonly to functional than to structural disease.

5th. It is not as a consequence of phlegmasias, or malignant diseases of the uterus or its annexes, that goitre is developed; on the contrary, the disorders which more commonly cause or precede goitre are fluxions, congestions, functional diseases of the pelvic organs, or those disorders of menstruation which are of systemic origin.

6th. As many goitrous necks among women are due solely to some derangement of their generative organs, the use of topical applications or remedies, however administered, unless made use of to remedy the cause, will be of no avail, and constitutes irrational and unscientific treatment.

7th. In the prognosis of goitre, we should always bear in mind the possible complications when the tumor is of considerable size; prominent among which are compression of the trachea, leading to dyspnea, or even dysphagia, and compression of the recurrent laryngeal nerve, producing harshness of the voice, and sometimes aphonia.

8th. When the goitre is not large and is manifestly dependent upon some derangement of menstruation, some functional uterine affection, or has suddenly developed in consequence of pregnancy or violent efforts in labor, the prognosis is favorable, although it is not certain that there will be a rapid disappearance of the deformity.

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THE SYSTEMIC RELATIONS OF THE MENSUAL WEEK.

BY

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THE observations I have to offer in this communication may seem to some readers of doubtful value, while others may possibly think they savor of impertinence, and should proceed properly from the pen of some one in family practice. I shall quarrel with neither; and only ask, "Let the proof of the pudding be the eating?"

We have so long been under the thraldom of the teaching that the catamenia are merely localized pelvic matters, in which the uterus and ovaries alone are concerned, that we are apt to lose sight of the wider aspects of the subject. Yet there are associations of the catamenia which are systemic; and which are worthy of more attention than is at present paid to them. There is much evidence pointing to a rise in arterial tension, in temperature, and in muscular power, going on gradually during the intermenstrual interval, culminating in the premenstrual week, and rapidly declining during the catamenial week. We know something of the normal condition of matters, but, I fear, even this is not as generally known as it ought to be; while of disturbances of this process in the sex we know less. Yet there is room for holding the view that many maladies in women are really disturbances of this normal and physiological process. Recently the attentive perusal of Dr. Mary Putnam Jacobi's Boylston Prize Essay on "The Question of Rest for Women During Menstruation," had set me thinking on the matter, rather as a physiologist, however, than a physician; female troubles not being exactly in my line of private practice. Of course, no physician can avoid being fully impressed with the necessity for being familiar with these matters in hospital practice; nor can he help feeling grieved that they are so commonly overlooked, or underestimated.

It is as essential to know something about the individual as about the disease: and if a woman have a mitral leak, or a diseased lung apex, it is, in my opinion, quite as desirable to learn how many days she is "unwell" in each month, whether too much or too little, as it is to observe the time and seat of the maximum intensity in the cardiac murmur, or the extent of lung mischief and the nature of the râles heard in the consolidated area. From a therapeutic point of view, perhaps more so; but I am quite ready to be corrected, both for my views and for this digression from the exact matter in hand.

To proceed with the subject under discussion:

Case I.—Some eighteen months ago, I received a telegram to go down to one of the University towns to see a lady, who was pronounced to be dying by her medical attendant and the local consultant. The patient was believed to be beyond any hope; but as several of her family had been under my professional care, with results satisfactory alike to them and myself, it was decided to call me in, to see if anything more could possibly be done.

I found the lady, aged thirty-eight, flat on her back in bed; her lips and teeth covered with sordes; her tongue brown and becoming dry; and her consciousness much disturbed. Well this certainly looked grave. Her temperature was 103° Fahr., and had been so steadily for six days; her pulse was 130, and her respirations 40 per minute. The urine was laden with albumen (one-half). These facts did not make the outlook any brighter, certainly. The lady had been confined five weeks previously, had gone on well, and had been out for a drive; and been supposed to have caught cold, as the exciting cause of her illness.

Well, it was quite clear that the first thing to be done was to make a careful search for any local cause for this systemic disturbance. Suspicion was at once directed to the possibility of pelvic mischief, especially cellulitis. Nothing could be found, however, to throw any light on the subject. There was a patch of dulness at the back of the left lung; but this evidently was a consequence and not the cause of the general condition. But what was the "cause"? that was the question! Of course, the prognosis was greatly, immensely affected by the fact of the absence of some local cause for all this. With some local disease, as an abscess forming, it was most likely that life would soon be extinguished; in the absence of any such local cause, there was probably a simple pyrexia to treat. But though a simple pyrexia, it had gone on till the consequences of a long-continued high temperature were established in that group of signs and symptoms, known in its *tout ensemble* as "the typhoid condition;" a condition ever fraught with danger. Still, in the absence of any local exciting cause, a less gloomy prognosis was permissible than that hopeless one given by the local practitioners. When pressed by the family to give the disease a name, I replied, "If I must give it a name, I must fall back on the old, indeed obsolete term, nervous fever;" explaining that it was a truly "nervous" affection, unconnected with organic changes. This was not exactly satisfactory; but the family were only too glad to hear that there was any hope.

Next came the question of treatment. How was that pyrexia to be "felled?" It was evident that if the pyrexia was allowed to proceed, then the typhoid condition would go on until life was blotted out. The high temperature must be pulled down somehow. What were the antipyretic remedies to be employed? The skin was moist, so diaphoretic antipyretics were contra-indicated. It was clear the agents to be employed were those which strike directly at heat production. (They are described in Chap. IV. of "The Practitioner's Handbook," and the rules there laid down were followed, and the case is briefly alluded to at p. 115 of the 2d American edition.) Quinine in four-grain doses, with ten drops of tincture of digitalis, and fifteen of dilute phosphoric acid were given every six hours.

In forty-eight hours the temperature had fallen to 101°, the pulse was 106, the respirations 38. The external application of cold to the trunk was now added with good results. The albumen had entirely disappeared from the urine.

To cut a long story short, and to save the unearthing and perusal of more letters than are necessary for my purpose, in five days the temperature at 10 P.M. was normal (98½°), pulse 96, respirations still high, 33. "The patient had had a good night, was knitting in bed, and took a small turn round the room unassisted." Her progress towards recovery was uninterrupted; except that, three weeks after I saw her, she was ill, and the temperature ran up to 103° again. The same line of treatment was adopted, and in a day or two the temperature fell, and all unpleasant symptoms vanished; and the patient from that time has been well. Eighteen months after this I saw her, and she looked the picture of health.

The illness was evidently a "neurosis," that was clear when the term "nervous fever" was resorted to. But what started the neurosal disturbance of those centres in the medulla oblongata which preside over the temperature, the respiration, and the circulation? The return of the pyrexia with the fast pulse and hurried breathing twenty-eight days after the appearance of the preceding neurosis, suggested an association with the catamenial periods. On carefully going into the subject, it was found that *these attacks corresponded with what would have been the catamenial weeks, if the lady had remained unimpregnated.*

Now, I quite admit that one swallow can scarcely be regarded as valid evidence of the advent of summer; though the most sceptical of observers will own that the appearance of a swallow is suggestive, to say the least of it. Nor can I expect my readers to feel satisfied that my explanation of the nature of the case is unimpeachable; or that doubts may not be cast upon it. But, to say the least of it, it is a view of the subject well worth entertaining. I am the more convinced of this that I have found several family practitioners, whose powers of observation and reflection command respect, agree with the view taken here, when expounded to them. Whether the case can be regarded as substantiated or not, it is sufficient to cause us to inquire into "neuroses," which, anyhow, are "synchronous" with the catamenial week, if not causally related to it. We know that there are neurosal high temperatures, as Prof. Austin Flint points out in his recent work on "Clinical Medicine;" and we have long been familiar with the fact that there are rapid pulses and rapid respiratory efforts which are of "neurosal" origin. Even the most sceptical will admit the *a priori* probability of such neuroses in association with the normal disturbances of the catamenial week. This recital is not regarded as settling the matter; but as sufficient to excite interest in it. And it would be well if the readers of this article would rake back their memories for similar anomalous pyrexiæ, on the one hand; and, on the other, keep a sharp eye on such pyrexial states in women as have no definite local cause, and yet do not present the familiar features of any special fevers, in the future. I feel firmly convinced that the result will be that a number of anomalous pyrexiæ will be found to correspond with the time of the catamenial week. If this is the case, then a great deal of unhappiness and anxiety will be avoided.

It is scarcely too much to say that, if the elderly gentlemen who were at the helm before I appeared on the scene, had possessed neither a clinical thermometer nor a test-tube, probably they would not have perturbed themselves, and disquieted the patient's family less than they certainly did. The case looked grave enough doubtless, and their gloomy prognosis might have been verified if the line which was taken had not been adopted; but that does not directly affect the question of the prognosis they hazarded. The case at least teaches this lesson—never in a woman assume that a pyrexia is going to be fatal without first making careful inquiry as to whether it may not be a mere exaggeration of the ordinary catamenial perturbations; especially if no local cause for the pyrexia and its concomitant systemic disturbances can be found, and the case is not one of a recognized form of fever.

Now Berthier has written a book on "Neuroses Menstruelles," which may be a big book or a little book for anything I know; my acquaintance with it is confined to what Dr. Mary Jacobi says about it. Those familiar with it may have a contemptuous smile for what I am going to tell; but those who have not studied it may possibly find some instruction in the cases I am about to relate. He "has collected a large number of cases where the approach of menstruation was heralded by various forms of neurotic disorders, excitement, epilepsy, hysteria, mania." Here are two more to be added to the list.

CASE II.—A lady, æt. 44, still quite regular at her monthly periods, and not much disturbed by them, was seized with capillary bronchitis in the dense fogs of the early months of 1880, which produced that terrible death-rate quite unprecedented in our times. She struggled gamely, and by flogging on the centres of the circulation and the respiration, by digitalis, by carbonate of ammonia, and tincture of nux vomica every four hours—at her own request, after a day or two, every three hours—she weathered the gale. She was a very highly educated person, and was as familiar with the Fothergillian Prize Essay on "The Antagonism of Remedies," and the effect of these stimulants to the circulatory and respiratory centres, as was I myself. Her conviction of their good effects upon her caused her to lessen the interval of the dose. After the danger was over, these tired centres evidenced the exhaustion they felt, by discharging more slowly than the normal rate; the respirations being only 13 per minute and the pulse 60. All seemed well, however, and the case was convalescing satisfactorily when a messenger came to say that the patient had suddenly become delirious, complained of intense vertical headache, and was vomiting. This was not a very cheering group of symptoms, so I went on to Dr. Hughlings Jackson's, and had a few words with him. I explained the past history of the case, and the highly developed nervous system of the patient. He said in words to this effect: "You have flogged on certain centres and maintained life: but the exhaustion is manifesting itself by the temporary abolition of the function of the highest inhibitory or controlling centres; and those next beneath are in action. Acute delirium never need cause anxiety, *unless* preceded by evidences of organic mischief within the skull. Under the circumstances I do not feel very apprehensive; but if you find the case serious I will go with you to-morrow." I was very much relieved, and said I had reason for believing that these head symptoms had come on with the appearance of the catamenia. He said this made the outlook decidedly brighter.

When I saw my patient she was quite delirious, could not be made to recognize me, was talking vehemently in French; while her mind was wandering back to a residence in Algiers some four years before. The symptoms had come on synchronously with the appearance of the menses. Both continued about a week, the delirium growing thinner; the mind going back to further by past time, some ten years back. As the menses disappeared, the delirium gave way to long quotations from Shakespeare, especially Ophelia; the patient sometimes being quite conscious and recognizing her delirious acting of Ophelia. She gradually improved; the only evidence of the brain impairment being a tendency to tell the most barefaced lies, which carried their falsity on their face. So pronounced was this that for a week or two I only allowed the more discreet of her friends to see her, for fear some social mischief may arise from this new psychical departure, so unlike her strict remarkable integrity in health. After a while she gave over "lying," and apparently got quite well. Still there remained a certain amount of cerebral excitement, more pronounced at the recurring catamenia.

Her sister possessed the same highly developed nervous system, and suffered dreadfully from facial neuralgia and vertical headache. And a very instructive pair of sisters they were, being a "nice handful" for any medical man called in for the first time; as others, as well as myself, learned.

Case III.—This lady, æt. 42, had quite exhausted herself by nursing her sister, and was ordered to be perfectly quiet. On March 17th, on returning home, not very late, from the Irish Graduates' Dinner, I found a pencil note from No. 1, asking me to come at once, her sister had been taken suddenly ill, was motionless and unconscious, the doctor said "paralysis." A note from the doctor said this for himself. It seemed very curious that genuine apoplexy could occur in a person who, though of broad massive build, was so run down; while an embolism seemed unlikely somehow. However, when I arrived there, I found the patient flat on her back in bed, breathing stertorously. The local practitioner called in had left a box full of leeches for me. (As he is not a reading man, and in all human probability will never even hear of this article, his feelings cannot be hurt by anything I may say; if by some accident he does "get wind" of it—well, it can't be helped.) More from the sister's account than his, or after examination, it appeared that at one time the respiration had been most seriously involved, and arrest of it seemed imminent. On speaking loudly to the patient, however, she opened her eyes for two or three seconds; and then relapsed into unconsciousness. Still this was very comforting; and knowing the neurosal tendencies of the pair, I did not feel very uneasy about the future. If there had been a large clot ploughing up the hemispheres, and once pressing on the medulla, the respiration could not have improved, and that momentary gleam of consciousness could not have manifested itself. So there was relief on the question of clot; but there remained apprehensions of softening. But the symptoms were too general to render that lesion probable. What the case did look like most was "acute cerebral anemia from spasmodic contraction of the encephalic arteries." This had abolished all function in the contents of the skull, except the medulla; and even that was gravely threatened once or twice, when the respiration became very much embarrassed. That opening of the eyes on order corroborated the view.

Next morning there was great excitement without any delirium; but great and uncontrollable excitement, with loud talking and restlessness. On inquiry it was found that this neurosis corresponded in time with the oncome of the catamenia. The excitement went on for two or three days, the patient becoming gradually calmer. In a day or two the patient recovered her ordinary calm, as the catamenial flow disappeared. The excitement grew less gradually, just as did the delirium in her sister as the menstrual period passed away, and when completed the mind became clear in each case.

Now this lady possesses great and unusual self-control, yet her catamenial periods have exercised me considerably of late. With their onset came back the excitement, and at one of the periods there was unconsciousness with arrest of all motor power. But this did not excite apprehension so much as alarm. It frightened her sister for the time, but that was natural enough; still she did not feel apprehensive that life was endangered. After eight months there is still abnormal excitement at the oncome of the period, without, however, any other form of disturbance.

Probably some readers may think the pathology of this last case not quite clear or conclusive. But the symptoms correspond with those produced by Kussmaul and Tenner when both carotids were ligatured on the one hand; and their entire disappearance so quickly, on the other, point to a neurosal condition. The excitement (the intellectual area) and the restlessness (the motor area) which followed, pointed to dilatation of the arterioles consequent upon the preceding spasm; and corroborated the view of acute cerebral anemia. At least that is my interpretation of the group of symptoms. Perhaps some reader of greater experience in such cases than I can pretend to have, may read them in another light, and furnish a more correct interpretation of them. And if so, I beg him not be deterred by any thought that I may feel hurt by being "sat upon" or corrected. I shall only be too thankful for the instruction.

The whole subject indeed of the systemic relations of the mensual week is full of interest for the physician as well as the physiologist. We have long been familiar with the fact that the act of "spaying" a young female animal abolishes the characteristics of sex in it. It is time that we become equally familiar with the other contrasting fact, viz., that the removal of both ovaries from an adult woman does not do away with the rhythmic catamenial flow at the usual interval. When the characteristics of sex are fully developed in maturity, they survive the removal of what have been regarded as the feminine organs *par excellence;* because on their presence certainly depends the development of sex. We must then learn to regard the menstrual molimen as a something not local—not merely pelvic, but having far-reaching relations—as a something systemic indeed. All of any extensive experience have met with instances of vicarious menstruation, of which hematemesis and hemoptysis are the most frequent examples; in cases which show that at the menstrual week the raised arterial tension may be relieved at another quarter than the internal reproductive organs; that, in other words, "the point of least resistance" may be situated elsewhere than in the uterine lining membrane. With this fact, I repeat, most experienced practitioners are familiar; and almost all have laid aside their fears as to the gravity or organic origin of hemorrhages which manifest themselves synchronously with the menstrual week—or what would be the menstrual week if the flux manifested itself normally.

This is one factor in the conclusions I am about to draw.

The other is the fact that all maladies of a neurosal nature are on the increase, and markedly so at the present time. At his introductory address to the Psychological Section of the British Medical Association at its recent annual meeting at Cambridge (1880), Dr. Crichton Browne pointed to the general increase of all neurosal affections in late years; and of this increase there can be no reasonable doubt entertained. As to the truth of what he said, as regards the neurosal affections of the heart, I personally can bear my testimony. Such being the case then, we may fairly anticipate that neuroses associated with the catamenia may be expected to manifest themselves very differently in the future to what they have done in the past; and that, too, especially amongst women of a highly developed nervous system. Until more accurate observations are made than have hitherto been reported, as to the modifications of temperature, pulse, and respiration at the menstrual week, we cannot tell what rise may be compatible with physiological disturbance; and what is the limit beyond which lies a distinctly pathological state.

Further, what may be disease, or, rather the indications of disease in a women of lymphatic temperament, may be a matter of little or no moment in a woman of distinctly neurosal temperament. In this latter class of persons, I venture to suspect considerable perturbations occur quite commonly; and without exciting alarm until the clinical thermometer is brought into play, and the consternation is established. But the remarks of Austin Flint on the perturbations of temperature causing needless alarm, in his recent work on "Clinical Medicine," should be read and carefully thought over by every man who takes upon himself to wield a clinical thermometer. Beyond noting a distinct rise, the practitioner should keep his head cool, and look about him keenly for the cause of the rise. If the patient is a woman, the more likely the perturbation is to be merely neurotic. If the nervous system is highly developed, the suspicion is strengthened. But before deciding that a pyrexia is of organic origin, a careful examination should be made to discover, if possible, the local cause; if none be found, then the next duty is to scrutinize the features of the malady to see if they bear any familiar resemblance to the well-known specific pyrexia; if no such family likeness can be traced, then examine the stranger still more minutely to see that it is not a "solar pyrexia," or one of those nondescript entities just beginning to be discriminated and classed. And above all, bear in mind the perturbations of the catamenial week, and track down the catamenia, and see if the malady will not "fit" in time to the menstrual week; and so diagnose the ailment by its chronological associations. When hunted down and discovered to be really a neurosis, an exaggeration of the normal perturbations set up by the catamenia, the prognosis becomes cleared; just as the removal of dark clouds reveals a sunlit sky. The neurosal nature recognized, the treatment becomes simplified; and not only that, but it is effective. Such plan of looking at an anomalous pyrexia in women would often save much needless alarm and apprehension amongst the patient's friends; perhaps, also, some possible loss of credit to the practitioner; and even gain some credit to the watchful physician who does not trip into the pitfall before him, but sees his way in "devious places."

As to cases II. and III., I have less to say in the way of general observations. Opportunities for seeing and watching such cases must necessarily come rarely in my way as a consultant; but by recording them, some of my numerous readers may be put on their guard, when such cases come before them, and be enabled to read them aright; and by recording them in their turn, benefit other readers. The whole matter may have been laid bare somewhere in medical works with which I am not personally acquainted; if so, all the better! Only even in that case I can plead that it is possible to have a glass of water which has not been drawn from a neighbor's well. The intellectual lesson taught by these cases is this: all the maladies to which flesh is heir are not yet tabulated and classified in text-books.

The moral lesson is this: our knowledge is imperfect; physiology is telling us much and promises more; the use of the clinical thermometer involves more correct knowledge as well as wider information than generally obtains; the instrument may tell significantly of coming trouble, but it may also cause needless alarm; and indeed, at times may lead us to that unfortunate mistake against which we are warned in the proverb, "never meet trouble half-way."

23, Somerset Street, Portman Square, W.,
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THE TREATMENT OF MAMMARY ABSCESS.

BY

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In the Transactions of the Obstetrical Society of Philadelphia, for the year 1879, I found an article on Mammary Abscess, in the discussion of which subject many members of the Society took part. During this discussion, various means were recommended to prevent the formation of pus in the breast; to prevent and cure sore nipples, and to treat the breast after suppuration had taken place. Seven eminent physicians participated in this discussion, and as they are all persons much engaged in obstetrical practice, we may conclude that we have in this paper a brief account of the most approved modes of practice. I say modes, for no two of them approved of exactly the same plan or mode of treatment.

One of the speakers said that "the old-fashioned gathered breast is very seldom seen at the present time," but he referred to "small tumors arising near the periphery of the gland; the lump is quite tender, treatment is applied and it is relieved, but returns and *in spite of all treatment* will finally break." "It occurs," he says, "in women who are nursing and who are doing well, and is, sometimes, the effect of exposure to sudden chill." The perfection to which nursing of the lying-in woman has been brought, in our great cities, is probably one great cause of the scarcity of mammary abscess there. As we of the country have indifferent, unskilled nurses, and as many of the patients suffer from adverse surroundings, and, too, as we do not make many visits after the child is born, the disease frequently presents itself, and has often made great advances before it is brought to our notice; and yet, I ought to say, that it is not so frequent now as thirty or even twenty years ago, owing, perhaps, to our having better nurses and giving more attention to the patient ourselves. In the long run of fifty years it was my fortune to have many cases of "inflammation of the breast" to treat, and great suffering have I witnessed while I was anxiously and faithfully applying the means now recommended by those who took part in the discussion to which I have referred. The plans of treatment seem to have undergone no change, the principles of treatment are the same, differing only in the strength of various ointments, or washes, or in the substitution of one astringent or poultice for another, as suited the different practitioners. The use of the fluid extract of phytolacca, as recommended by Dr. J. G. Allen, to remove congestion of the breast is to me a new remedy, one I have never tried, and, as he does not claim for it any value save in the congestive cases, indeed, says, in none of the other forms which he notices "will it be found of the slightest use whatever," we may regard it as a means of cure of very limited advantage. Many of the speakers spoke as men who had been sorely tried in treating the sore nipples and inflamed mammary gland, and my sympathies were with them, for many a time I had experienced similar disappointments in the use of my remedies. Many years ago, in 1827–8, Prof. Wm. P. Dewees strongly urged upon us the use of flannels steeped in hot vinegar and reapplied frequently, as a means of removing the congestion, spoken of by Dr. Allen, and for the dispersion of which he recommends the phytolacca. In our first cases we resorted to it; then came the camphor melted in lard and applied by every nurse as a specific in inflamed breast "to prevent it from gathering." Solutions of sugar of lead, lead plasters, and poultices followed the failure of the former remedies. In some cases we were not called until the abscess had opened, but in most of them the lancet was used. The breast was opened, the matter discharged, and sometimes a speedy cure followed; in other cases there was prolonged suffering, one abscess following another, until almost every part of the gland was unfit for use. In 1853, I was in attendance on a young, healthy woman with her third child. Two months prior to her confinement, she had an abscess of the breast, like those spoken of in the discussion by Dr. Albert Smith, which I had lanced and from which she had entirely recovered. A few days after the birth of her child I was called to see her, and found her suffering greatly from an inflammation of the left mamma—one of Dr. Allen's congestive cases. It was large, tense, and fiery red, over the most affected part. I at once proposed to her to cover it with cloths wet with iced water, and renewed every few minutes. She expressed a fear that it would give her a chill, but finally consented; they were applied, and the great comfort, produced in a short time, encouraged her to keep the nurse steady to the work. Finding it so grateful, and the relief so decided, I procured a bladder, and, putting some cold water and ice in it, had it put on the inflamed part. A few hours showed us that the danger of suppuration had passed. From that time until the present, twenty-seven years, I have used no other remedy, and, whenever called before suppuration has taken place, can always prevent it. So greatly was this patient relieved that she spoke of the remedy in such terms of praise as to make it a desirable remedy to any others in the town who feared a "gathering." To show that it is just as applicable, efficient, and safe in cases that have suppurated and been poulticed, and have "broke," or been lanced; one abscess being followed by another and another, until nearly the whole breast was involved, I will give an account of a case which occurred in my practice.

Mrs. B——, a few days after her confinement, suffered from chill followed by pain, heat, redness, and swelling in the right breast; the nurse worried with it in the usual way, but the great suffering of the patient induced them to send for me. I had gone away for a week, and a medical friend took charge of her for me. He found her suffering greatly with a large abscess ready to be opened. It discharged freely and the poultice, which she had on at the time, was replaced. He saw her several times before my return, and opened another abscess, and still continued the poultice. My first visit to her was with the physician. She was suffering greatly. The breast was much swelled, was solid and heavy in some parts, and a red, highly inflamed surface of several inches, on the under and outer part, gave warning of a third abscess. I advised the use of ice, which greatly surprised both patient and physician. The fact that she had been kept very warm for two weeks, for fear of getting more chills, and that she had had warm poultices steadily applied during nearly all that time, was, to their minds, strong reason for objecting to its application—the great change from heat to cold they deemed most hazardous. As the patient was a new-comer in the place and knew nothing of the cold treatment, and positively refused to have it applied, the breast was supported and the poultice continued. She was truly wretched; half sitting up, supporting her suffering side, no good sleep, no appetite, the breast stinging and burning, night and day, as those only know who have suffered like torment, she was a picture of distress. I concluded to bide my time, knowing, full well, that she could not hold out long against her sufferings and my persuasions. In a few days I opened the third abscess; the other openings, too, were still discharging and had become larger. I then prevailed on her, after the most solemn assurance that no harm would come to her, to have the ice applied. A large bladder was partly filled with water and lumps of ice and applied; two thicknesses of wet muslin first being applied to the inflamed breast. The relief was soon apparent to her, by the speedy removal of the great heat, which night and day had tortured her. That night she had comfort. There were no more abscesses; the heat, tension, and pain of the inflamed parts subsided, and in a few days, the hot, tender, angry breast was so changed that she rapidly regained her cheerfulness and health. Since that time she has been most earnest in praise of cold treatment—not one moment of comfort did she have before it was applied—and then what comfort! I saw her only a few months since, when she referred to it, she said: "Doctor, no tongue can tell how I suffered before the cold water and ice were applied, I believe they saved my life."

During the twenty-seven years that I have used it, I have very often been called to women whom I have found with a breast painful, swelled, and red over the swelled part; the result, the patient would tell me, of "a chill, which happened in the night and fell right away on the breast," since which time she had had no rest. I here at once applied the ice, and in no instance, if suppuration had not already taken place, have I failed to disperse the inflammation, at the same time that I brought comfort to the patient. In some cases I have found the suppurating process so far advanced that nothing could prevent it, but even here I apply the ice, knowing that it will give the woman great comfort, by removing the heat, allaying the inflammation, and thus preventing any more of the breast from becoming involved in the suppurating process. And now, as I write this sentence, I feel that some readers will stop here and read it over again. Then they will say: "*that* is ridiculous, the abscess has its bounds marked out early; treat it as you may, it will have a fixed size, no treatment will make it larger or smaller."

Several years ago, I was called to a case, and found a breast ready for the lancet, indeed, it was "dead ripe." It was evident from the blue color of the skin that it would soon slough if not opened, and, indeed, even if it were; but no persuasion of mine to have it opened could prevail with her, because she had heard, "that if left to open itself it would not gather again." So I was forced to leave her, warning her though that she would be likely to lose her whole breast. In a few days I was sent for again. The fore and upper part of the breast had sloughed away. She was still poulticing. After she got well, there was no more gland there than in the palm of her hand. She had other children, but only one breast.

Had the cold been applied early, or, even too late wholly to prevent suppuration, the inflammation could have been so held in check that the gland would have been unharmed, so far as its future usefulness would have been concerned. I would not have taken time with this idea that you cannot set bounds to the suppurating process, were it not that this opinion is strongly held, and is the real reason for applying warm poultices, so as to have it over as soon as possible.

So far as I have ascertained the opinions of physicians on this subject, I may say that they, nearly all, dread to apply cold to the abdomen or chest of a lying-in-woman. I have covered the distended belly of a woman ill with peritonitis with snow for nearly two days, though when called to her she had been kept very warm, and had had warm poultices applied, nor did I fear the least danger from the change. Why not? Because I know full well that, whenever the human body, as in fever, is above the natural temperature, you may apply cold to every part of it which is so heated, until it is reduced to the ordinary, natural heat, without the least fear of producing chilliness; so, with local affections—inflammations I should say—the ice may be applied safely as long as the heat of the part is above the health standard. To apply cold water and ice to an inflamed breast, or to any other local inflammation, in which the part has its temperature raised, is safe, efficient, and to the patient most comfortable. Nothing that I have ever tried has given me so much satisfaction and my patient so much comfort in the disease of which I write, as the cold applications.

As it is well to have other testimony than mine, I quote the following from page 151, *Philadelphia Medical and Surgical Reporter*, of August 16th, 1879. A writer in the *British*

Medical Journal says, "the suggestion of treating threatened inflammation of the mammary gland by ice was one of the most valuable hints he ever got." He thus describes its use in a case. "I used a large Chapman's spine-bag, filled with ice, which encircled the lower half of the breast. It felt very cold for a minute or two, then a considerable quantity of milk was shot out as from a syringe (no milk had flowed before), the pain abated, and in an hour was almost gone. I now renewed the ice in the bag, and the patient kept it closely applied with her arm, which was protected from the cold by a folded towel. Next morning I found her hugging the ice-bag, and loud in its praise. She continued suckling her infant, but she suggested that it should not be put to the breast oftener than two or three times in twenty-four hours. On the fourth day, after commencing with the ice, the most careful examination failed to detect anything wrong in the breast, and she is now quite well and nursing her child. No other remedies were used."

I am glad to have this testimony, for, all over the country and, I may say, in the city of Philadelphia, the old treatment by astringent washes by poultices and plasters continues to be practised. There is no better way to apply the ice than to put it into a bladder with just enough water to float it, or just to form a kind of water cushion, that will fit the inflamed part nicely. It is not necessary to put two thicknesses of muslin between the bladder and the breast, it is not too cold without any, but a single thickness is useful to keep the bladder in place more readily. There are certain conditions of the nipple in which the iced water, in a small bladder, produces great comfort. I have never met with a single patient suffering from inflammation of the breast, and who has been treated by applications of ice and water, but has given utterance to the great relief which they brought to her. There is infinite satisfaction in bringing relief to our patients by remedies acting so promptly, so efficiently, that they cannot but recognize whence it comes.

THE RELATION OF THE OVARIES TO THE BRAIN AND NERVOUS SYSTEM.

BY

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THAT the sexual organs exercise important influences upon the brain and nervous system in health and disease is recognized, in a general way, by medical authorities. There is, however, an obvious lack of exact knowledge upon the subject, especially in regard to the share which individual organs of the sexual system contribute to the sum of such influences. Therefore, you will bear with me while I offer my humble contribution towards the elucidation of one section of this subject, viz., the relation of the ovaries to the brain and nervous system.

In this practical age, physicians and surgeons, prompted by a desire to relieve human suffering, are often led to hazard the use of therapeutic agents which are not suggested by a knowledge of pathology and correct diagnosis. The desire and haste to do good, without at all times knowing how to do it, is and always has been a fruitful source of error in the practice of medicine. This natural inclination sometimes leads one practitioner to use all the art of the neurologist to quiet a nervous system disturbed by a diseased ovary, while another removes the ovaries in the hope of curing a pelvic neuralgia caused by the products of a bygone peritonitis. A clearer comprehension of the interdependence of the various portions of the organization would obviate such tendencies, and render more valuable such knowledge of special subjects as already exists. Upon such grounds the present subject commends itself for further investigation.

That one organ, and indeed one part of an organ, exercises a higher and better defined influence upon the rest of the organization than another, is a fact beyond question. It is well known, for instance, that the cervix uteri is less potential in affecting the nervous system than the body of the uterus.

The gynecologist may wound, cauterize, or amputate the cervix without exciting violent pain or inflammation; but he finds less security from danger in dealing with the body of the uterus. It appears to be a general law, that, in proportion to the functional importance of an organ, is the influence exerted by that organ upon the general system, both in health and disease. If that is true, a satisfactory reason is obtained for the fact observed in practice, viz., that diseases of highly essential organs cause marked disturbance of the general system; while diseases of other organs that perform minor or auxiliary functions are less potent in producing remote effects. A knowledge of the anatomical and physiological value of an organ gives some idea of the extent of its power to influence other organs of the general economy, although it may not define the nature of that influence, nor the manner in which it is exerted. Even when we understand the cause at work and the character and degree of an effect produced by one structure upon another, the modus operandi may be obscure. At the beginning of this subject we encounter a series of problems which I cannot satisfactorily solve, but I can begin the investigation and hope that others will push it to its ultimate reach. I propose, first, to refer briefly to the physiological relations of the ovaries to the other sexual organs.

The function of the ovaries is primary in the process of reproduction. Their physiological activity precedes the uterine functions and continues, as a rule, until the menopause, and possibly after it. Hence the functions of the other sexual organs appear to be responsive to the influence of the ovaries.

There are, however, differences of opinion concerning this matter. Observations have been made which show that ovulation and menstruation occur independently of each other, in exceptional cases at least, and a high degree of importance has been given to that, apparently, independent action, but such irregularities are the exception, not the rule. There are facts in abundance to prove that, when the ovaries are absent or rudimentary from birth, the function of the uterus is never established, and the removal of the ovaries after puberty arrests menstruation in the majority of cases. All that we know regarding the influence of the ovaries upon development of the individual, and the exercise of the sexual functions throughout the reproductive period of life, points to the conclusion that these organs are the prime movers and controlling spirits, to speak figuratively, in the sexual system. The simple facts that ovulation and menstruation do not follow each other in consecutive order in exceptional cases, and that the two functions occasionally are performed independently of each other, do not affect the general rule in physiology. Because irregularities occur in the harmonious action of the sexual organs, their interdependence need not be doubted. The same natural order of phenomena is observed in all processes of the human economy. The primary action of an organ that stands at the head of a system sets all the subordinate organs in functional motion. Taking food is the first step in the great process of nutrition, and digestion and assimilation follow in natural physiological order. There are occasional irregularities in the succession of the processes of nutrition, as when gastric juice is secreted in the absence of food in the stomach, and vice versa, but such events are exceptions to the rule. Certain impressions made upon the brain are followed by definite mental phenomena, but the brain sometimes fails to respond to impressions; and again it occasionally acts by imagination independently of extrinsic excitants. So also an action or function which has been begun by a given influence may continue after the cause which produced it has been removed. If we accept the idea that the ovaries are essential to the very existence of the sexual system, and that their office is the highest and the first in the order of events which collectively make the complete process of reproduction, it is easy to understand that their absence would arrest the action of the whole system. They are paramount, not subordinate in reproduction, and in the maintenance of the relationship between the general and the sexual systems the ovaries are undoubtedly the most potential. The uterus and vagina are superadded structures rendered necessary by a more complex and perfect system of reproduction in the higher species. The anatomical and physiological value of the ovaries as factors in the reproductive system suggests an equal distinction in their association with the general system, and in their influence upon it. This corelationship has been variously estimated by authors.

Dr. Henry Maudsley, in his book entitled, "Body and

Mind," says: "The organic system has most certainly an essential part in the constitution and the functions of the mind. In the great mental revolution caused by the development of the sexual system at puberty, we have the most striking example of the intimate and essential sympathy between the brain as a mental organ and other organs of the body. The change of character at this period is not by any means limited to the appearance of the sexual feelings and their sympathetic ideas, but, when traced to its ultimate reach, will be found to extend to the highest feelings of mankind, social, moral, and even religious. In its lowest sphere, as a mere animal instinct, it is clear that the sexual appetite forces the most selfish person out of the little circle of self-feeling into a wider feeling of family sympathy and a rudimentary moral feeling. The consequence is that, when an individual is sexually mutilated at an early age, he is emasculated morally as well as physically. It has been affirmed by some philosophers that there is no essential difference between the mind of a woman and that of a man; and that if a girl were subjected to the same education as a boy, she would resemble him in tastes, feelings, pursuits, and powers. To my mind it would not be one whit more absurd to affirm that the antlers of the stag, the human beard, and the cock's comb are the effects of education; or that by putting a girl to the same education as a boy, the female generative organs might be transformed into male organs. The physical and mental differences between the sexes intimate themselves very early in life, and declare themselves most distinctly at puberty; they are connected with the influence of the organs of generation."

This much being claimed by so high an authority for the influence of the sexual organs upon the development and function of the brain and nervous system, I may inquire how far the ovaries are responsible for such results. Virchow and others have stated that the ovaries give to woman all her characteristics of body and mind, and I accept the proposition without qualification, feeling sustained in doing so by the fact that, when the ovaries are absent or defective from birth, the characteristics of the female sex are never fully developed. The tendency in the development of those in whom the ovaries are congenitally absent is towards the masculine type of the race.

I have seen two such cases, decidedly masculine in their physical and mental attributes, and there are many others recorded in our literature. There are some authors, however, who appear to stand in opposition to what is here claimed. In Dr. Goodell's paper presented to the Pennsylvania State Society, he says, that "The physical and psychological influence of the ovaries upon woman has been greatly overrated." And again he says, "In the popular mind, a woman without ovaries is no woman. He then gives his own views, which are that, "beyond the induction of sterility and the probable absence of menstruation, the deprivation of the ovaries after puberty does not change the character of the woman." Battey, Hegar, Wells, and Peaslee are given as confirming this doctrine. The views held by these authors are based upon observations of mature women from whom the ovaries had been removed. This alone is not a trustworthy source of information, because the results obtained up to the present time appear to be quite variable. For example, Dr. T. G. Thomas had one patient who was passive in her sexual relations before her ovaries were removed, but became aggressive afterwards. On the other hand, Dr. M. A. Pallen, in a paper read before the American Medical Association, in June last, related the history of a girl who was promptly and completely cured of "hystero-epilepsy" and an incontrollable desire for self-pollution by Battey's operation.

It is true, no doubt, that an individual who has been fully developed under the influence of the ovaries, will continue to manifest her former attributes of body and mind after they are removed, but it does not follow that the ovaries were negative in the process of developing and maintaining those attributes. One who has become blind in middle life will talk familiarly and understandingly of objects impressed upon the mind through the sense of sight, but one born blind cannot comprehend the beauties of a landscape. This abundantly proves that mental peculiarities may continue after the physical influences which caused them have been removed. Observations made from the opposite stand-point give evidence which leads to the same conclusion. We find that, if the ovaries are present in a given individual, she will manifest the physical and psychical peculiarities of womanhood, although all the other sexual organs may be absent. Women, well developed in all that is peculiar to the sex, have been observed in whom the uterus and vagina were defective, but I have neither seen nor heard of any such perfection of organization occurring when the ovaries were absent. Perhaps the strongest argument on this point is the fact that the general system, when modified by the influence of the ovaries, is rendered capable of performing the major functions of the uterus, as illustrated in a very striking manner by vicarious menstruation and abdominal gestation.

In this connection, a brief reference may be made to the influence of the nervous system in controlling the functions of reproduction. The full discussion of this question involves problems in physiology which have not been solved and are, therefore, beyond the scope of this paper. Whether the higher nerve-centres are developed to serve the demands of the nutritive and reproductive organizations, and whether the location of the nerve-centres which preside over sexual phenomena is in the cerebellum, or the lumbo-sacral portion of the spinal cord, are questions which I am not at present able to answer. It is sufficient for the present purpose to keep in mind that the sexual organs are dependent upon the general nutritive system for organic support, and that they stimulate, depress, or modify nutrition through the ganglionic nerves chiefly, and that the portion of the brain which presides over the organic functions also dominates the reproductive organs. We should also recognize the fact that the emotions are in part dependent upon the sexual organs for their development, and on the other hand that the sexual organs are largely affected by the emotions. Metaphysicians agree in stating that the sexual appetence, which owes it existence almost entirely to the ovaries, leads to more emotions than any other human tendency, and clinical observations afford good evidence to the physician, that the emotions affect the functions of the sexual organs in a marked degree. Grief, fear, anger, and even great joy are capable of arresting menstruation and probably ovulation also. In view of this great potentiality of the ovaries in developing certain capabilities of the brain and nervous system and in influencing their functions, it is evident that, in order to maintain harmonious action of the whole organization, it is necessary that the ovaries shall exist in full development and functional activity.

On the other hand, these organs which are so essential to the well-being of the individual must, when diseased, excercise a potent influence in deranging the brain and nervous system.

From a somewhat extended consideration of this subject, I am satisfied that a great many affections of the brain and nervous system are due to disease of the ovaries. The remote effects of ovarian disease have been observed and recorded to some extent, but not so fully, I presume, as might be. The tendency of observers has been to attribute certain mental derangements and diseases of the nervous system to the sexual organs in general, or the uterus especially. A little attention to some of the known defects and diseases of the ovaries and their relations to diseases of the brain and nervous system will, I think, materially change that phase of the subject.

Imperfect development of the ovaries not only modifies the physical peculiarities of the individual, but also retards the development of the higher nerve-centres. The demands of the sexual organs (especially the ovaries) stimulate the brain to a higher development. A very large part of the brain and nerve power is devoted to reproduction, and if that function is never established because of the absence of the ovaries, the brain and nervous system is never fully developed. When a woman is deprived of the sexual organs, the nutritive system may possibly attain a normal development, but the nervous system does not; it remains upon a lower plane. There is usually mental weakness and often derangement of mind among those in whom the ovaries are imperfectly developed. Among sixteen young single women that came under my observation in the Insane Asylum, I found twelve who had imperfectly developed sexual organs. Some of them had never menstruated at all, and others had done so imperfectly. The history of these cases led to the conclusion that the defective development of the ovaries was an important element in causing insanity. They no doubt inherited an insane neurosis or diathesis, but the absence of the ovarian influence, which favors a higher and more complete development of the nerve-centres, acted as the major cause in producing the insanity. This is not claimed to be a positively correct deduction, but there is certainly strong presumptive evidence that such was the case. The mental derangement appeared in the majority of them at or about the period of puberty. There was nothing in the size or development of these patients to indicate any marked defect in the nutritive system. The nervous and sexual systems alone were deficient. They appeared to have passed through girlhood in a normal way (although not manifesting a high order of mental capacity) until the period when the sexual organs should have begun to exercise their influence in completing the higher development of the nerve-centres. When that failed to take place,.the brain became deranged, instead of assuming new activities. Still it is possible that the imperfectly developed sexual organs resulted from inferior general organizations which were from the begining of a low type, and that the insanity which followed was due to transmitted lesions, and was not dependent upon the sexual organs at all. However, the facts appear to favor the opposite conclusions. One thing is certain regarding this subject, there is enough in the nature of the cases mentioned to invite further investigation in order to settle, as far as possible, the relation of the ovaries to insanity and other diseases of the nervous system which occur at puberty.

Derangements of menstruation have been credited with causing diseases of the nervous system, and justly so, but the relative power of the various sexual organs in the etiology of these disorders has not been so fully brought out as the practical importance of the subject demands. I have long felt satisfied that conditions of the ovaries which derange the menses or give rise to pelvic pain during the catamenia, affect the nervous system far more than the dysmenorrhea that is due to abnormal conditions of the uterus. Ovarian dysmenorrhea, as it is now called by some writers, is not sufficiently understood to be clearly defined in all its forms, still there are some facts that are sufficiently clear to illustrate the point I wish to bring forward. The character and location of the pain experienced during menstruation indicate, with some degree of certainty, that the ovaries are the organs at fault. In well-marked cases the pain is situated in one or both ovarian regions, and is generally continuous and of the aching variety. Rest may give a remission of the pain, but it is seldom intermittent. It may precede the menstrual flow, and generally continues until the period is over, and it sometimes lingers for a short time after the flow has ceased. Patients who have ovarian pain at all times, owing to some continued disease of the ovaries, usually suffer more at the menstrual period. There are exceptional cases in which there is relief from suffering during the flow, but they should not be classed under the head of ovarian dysmenorrhea. I intend to confine my present remarks to conditions of the ovaries which affect the function of menstruation and are manifested at the menstrual period only. Pain in the ovaries during menstruation and not at other times, is a recognized condition. Its true pathology may not be fully understood. I presume that it is not inflammatory, because it recurs periodically, and there is not always tenderness on pressure. There may possibly be a congestion and nervous excitation beyond that which is physiological. When it begins several days before the menstrual flow, it may be due to some derangement of ovulation. Whatever the lesions may be, I am satisfied that in that form of dysmenorrhea the nervous system becomes more disturbed, as a rule, in proportion to the degree of local pain, than in dysmenorrhea due to lesions of the uterus in the form of obstruction from flexion or displacement.

When hysteria, mania, or any other form of nervous disease occurs in such cases, it will be found very often that menstruation was normal until the ovaries became affected. Not only do we find diseases of the ovaries which are aggravated at the menstrual period, as manifested by symptoms referable to these organs, but there are good reasons for believing that there are some disorders of the uterine function that can be traced to the influence of the ovaries. In menstrual derangements which are not accounted for by any change in size, structure, or nutrition of the uterus or by deranged general health, but are accompanied with pain and tenderness of the ovaries, we may reasonably presume that the condition of the ovaries is the cause of the deranged catamenia. It has been demonstrated again and again, that ovariotomy will bring about the menopause, and why may not disease of the ovaries cause suppression of the menses, or other irregularities of that function? I have occasionally seen amenorrhea and irregular menstruation, when all the conditions necessary to a normal uterine function were present, except that there was evidence of either imperfect development or disease of the ovaries. When such patients suffer from nervous affections which we attribute to deranged menstruation, we mistake the effect for the cause. The primary point of departure from health is in the ovaries; the nervous disease and the disorder of menstruation are but the resultants.

Diseases of the ovaries belonging to the class of degenerations, including neoplasms, cause almost no disturbance of the brain and nervous system, so far as we know. Cysts of every variety and even sarcoma of the ovary are frequently seen without any symptoms except those arising from the mechanical effect of the presence of the tumor. That may be due to the fact that such affections are generally painless and unilateral.

Regarding other changes of structure without marked increase in size of the ovaries, much less is known, and hence we cannot at present say much about their remote effects.

Inflammatory affections, or such conditions as give rise to symptoms indicative of inflammation, are more easily observed, and their effects upon the nervous system are so marked as to attract attention. Indeed I believe that such affections produce remote effects more grave than disease of any of the other pelvic organs. The same may be said of displacements of the ovaries. Indigestion, spinal irritation, a great variety of neuralgias, headaches, mental irritability and insanity which are often attributed to some displacement, or hyperemic state of the uterus, can, by careful investigation, be traced oftentimes to some accompanying disease of the ovaries. That disease of the uterus or any other pelvic organ disturbs the nervous system is undoubtedly true, but to a much less extent than affections of the ovaries. This conclusion has been reached by observations continued through several years, and including a large number of cases. All varieties of uterine disease have been seen again and again, with very little accompanying disturbance of the general system, except that which ordinarily comes from discomfort and debility; but I have seldom seen a painful affection of the ovaries which was not associated with marked derangement of the nervous system. The pathology of ovarian disease is not yet sufficiently defined to enable us to take up individual diseases and trace their effects upon the general organization. I must, therefore, deal with conditions that are inferred from the symptoms presented. Of these, ovaritis and dislocation of the ovaries are of most importance.

There are many patients who present a group of symptoms which indicate disease of the ovaries. There is pain, usually of a dull, aching character, in the ovarian region. It radiates to the back, abdomen, and limbs, and is aggravated by fatigue, mental excitement, and especially menstruation. The digestive organs are deranged. There is constipation, frequent attacks of nausea, and the appetite is capricious. The nervous system is usually much disturbed, and becomes more so as the disease continues. There is tenderness in the iliac regions, and the ovaries are sensitive to pressure in a marked degree. When an ovary can be seized between the fingers in making a bimanual examination, the tenderness can be demonstrated. The fact that the ovary is not peculiarly sensitive in health (as noted by Peaslee and Henri Chaignot) gives great value to tenderness as a sign of disease. This well-known group of symptoms has been attributed to ovaritis by all authorities who have noticed the subject, upon the ground, I presume, that the symptoms resemble those of inflammatory affections. I doubt, however, if a sufficient number of investigations have been made to prove that inflammation is the only affection of the ovaries which gives rise to the symptoms observed. Other lesions might cause the same symptoms, but I may follow the habit of others, and call the condition which presents such a clinical history ovarian inflammation. One or both ovaries may be affected at the same time. The left one is, perhaps, most frequently so. Or possibly disease of the left ovary gives more marked symptoms. There is almost always great suffering during and after evacuation of the bowels in those painful and tender affections of the ovaries. The distress in some cases is quite extraordinary, causing the patient to dread the act of defecation. The pain differs from that which is caused by disease of the bowels; such as hemorrhoids, fissure of the anus, or ulceration of the rectum. It begins in the region of the ovary affected, and extends through the lower part of the abdomen, and in this respect resembles intestinal colic. In some patients there is marked faintness, pallor, and an anxious expression of the face, coldness of the extremities, and clammy perspiration. In others, there is great mental irritation, and hysterical manifestations. This disturbance during the action of the bowels is most marked when the left ovary is affected. This is perhaps accounted for by the anatomical relations of the rectum and the left ovary. All the symptoms referred to may be found in inflammatory diseases of the ovaries while they remain in their normal position.

Prolapsus of the ovaries that have been diseased before falling out of place, or that have become congested and tender after displacement, gives rise to the same mental and physical suffering. The ovaries, when increased in weight by congestion or change of structure, sometimes become prolapsed, but more frequently they are displaced as a consequence of dislocation of the uterus. Retroversion and retroflexion of the uterus are often accompanied with prolapsus of the ovaries. In these displacements of the uterus, the ovaries of necessity are brought lower down in the pelvis, and are more exposed to injury, but so long as they are not tender, nor displaced in relation to the other pelvic organs, no marked symptoms are presented. When they reach the most dependent part of the sac of Douglas, and are tender and painful, they doubtless cause the greater share in the suffering which is observed in backward displacement of the uterus. It is well known that displacements backward of the uterus cause but little trouble in some cases, while in others the suffering is intolerable, and has been known to end in insanity. I am fully satisfied that the difference is to be attributed to the condition of the ovaries, because they are usually tender or diseased in the cases of displacements of the uterus which are attended with great derangement of the nervous system.

In fissure of the cervix uteri with ectropium, there is, very often, downward displacement of the ovaries with tenderness and constitutional disturbance. The exact cause of the prolapsus is not quite clear. It may be due to imperfect involution, caused by the injury to the cervix, which permits stretching of the supports of the ovaries, or it may be due to the fact that the eversion of the cervix favors a prolapsus of the uterus, and the ovaries are carried down with it. When once the ovaries descend in the pelvis, they generally become congested and enlarged—conditions which incline them to descend still farther. This progressive displacement I have often observed. An ovary that (when first examined), is simply lower in the pelvis than normal, though occupying a lateral position, in time gradually descends and passes from the side to the centre of the sac of Douglas. It is to this complicating element, ovarian disease or displacement, that we can trace the difference in the effect of laceration of the cervix uteri upon different persons. One suffers very little, while the nervous system of another breaks down completely, and that too while the general impressibility of both appears to be equal.

Pelvic peritonitis, complicated with inflammation of the ovaries, affords some evidence regarding the influence in question upon the brain and nervous system. As a rule, the nervous system is not more affected in pelvic peritonitis than in any severe inflammation. Delirium is rarely seen in this affection, and the nervous perturbation is nothing more than that which arises from pain and depression. When the ovaries are decidedly involved, the disturbance of the brain and nervous system is much greater. I have seen four cases in which acute mania was developed during the course of pelvic peritonitis. In three of these, the ovaries appeared to be affected. In each of them, the mania was well defined, and came on towards the end of the first stage of the disease. It was preceded by pain and distress in the pelvis, more severe than usual in ordinary pelvic peritonitis. When the local disease subsided, the mania disappeared and has not returned in either of the cases. Three of these were patients of my own, the other was seen in consultation with my friend, Dr. William Wallace. One cannot be positive that the acute mania was due to disease of the ovaries, but when we consider that delirium and mania are rare in peritoneal inflammations, and remembering that there was evidence that three of the patients in question, if not the fourth, had disease of the ovaries, there is good reason for presuming, at least, that the exciting cause of the mania was the ovarian disease.

In cancer of the uterus, I have seen mania occur in two cases, under circumstances that led me to suppose that the ovaries were the disturbing elements. During the early part of the disease, there was very little suffering indeed; when the disease had involved the rectal and vesical walls, there was not much more than discomfort; but when the broad ligaments became affected, there was much more pain and nervous excitability and finally, mania. In the first case observed, I was inclined to attribute the mental derangement to exhaustion and septicemia, but the evidence did not corroborate that view of the case. The pain indicated that the ovaries were the seat of the trouble in both cases, and was so great as to account for the final derangement of the brain. What the condition of the ovaries was in one of the cases I do not know, but in the other I found, post-mortem, that one ovary was surrounded and compressed by cancerous infiltration of the tissues of the broad ligament. It was more vascular and softened in places, while other parts were harder than normal. It was not determined that there was any cancerous tissue in the ovary itself. The other ovary could not be distinguished in the mass of diseased tissue that occupied the place where it should have been.

In this brief and rather indefinite sketch of the cases of disease of the ovaries, which were supposed to exercise a marked influence upon the nervous system, enough has perhaps been brought forward to direct attention to the subject, and raise the hope that it may be more fully developed in the future. What is most needed is a large number of carefully kept histories of cases of ovarian diseases, associated with derangements of the brain and nervous system and of the post-mortem lesions found in the ovaries. Upon such data could be established more rational and much-needed knowledge of this branch of medicine.

Dr. Noeggerath has said that lesions of the ovaries, especially degeneration of their blood-vessels, are very frequently found. This statement by so distinguished a pathologist suggests how ample the field is for investigation. At the same time, it reminds us that practically we know little of many diseases of the ovaries or how to detect them during life. We do know, however, that pain and tenderness of the ovaries are frequently found associated with a great variety of nervous affections, both cerebral and spinal, which apparently depend upon the condition of these organs.

The attention of the profession has been directed to this subject, but not very extensively, nor with any very definite results. Dr. Peaslee, while discussing hysteria in the Gynecological Society at its meeting in Boston, remarked that he had attributed this affection to some condition of the ovaries, rather than to any uterine disease. That statement is no doubt very true, and, although there is much that is still unknown about the causation of hysteria, there is good reason for believing that, when it has its origin in the sexual organs, it is because of some deranged condition of the ovaries, either organic or functional.

The contributions recently made by Charcot to the literature of what he has called hystero-epilepsy, favors the views set forth here, regarding the pathological influence of the ovaries upon the nervous system. The name which he employs is unfortunate, and might well be set aside for some other that would convey the meaning intended. The only excuse for using hystero-epilepsy, to designate an epilepsy due to ovarian disease, is the habit of attributing all diseases, having a sexual origin, to the uterus. These observations of Charcot are valuable in directing attention to the part played by the ovaries in relation to epilepsy and other nervous affections. The condition of the ovaries in such cases is of great importance, and I wish that it was better understood. The fact that pressure upon them will arrest a convulsion would rather indicate that there was not ovaritis, but more probably some deranged state of the circulation and innervation, the exact nature of which remains to be settled by more definite anatomical observations made post-mortem.

A valuable paper, entitled hystero-neuroses, by Dr. George J. Engelmann, in the second volume of the Transactions of the American Gynecological Society, gives a very clear exposition of the relation of the uterus to nervous affections, as observed from his point of view. The following is from the introduction: "Among the numerous ailments to which woman is subject by virtue of her sexual organization, is a series of nervous phenomena of the various organs which form a group of symptoms not as yet acknowledged or studied as such, as they appear under apparently different conditions, and in the most varied phases. However heterogeneous they may seem, these nervous symptoms are closely related, being dependent upon one and the same cause—a pathological condition of the womb, and I have, therefore, grouped them under the common name of hystero-neuroses."

"By this term, hystero-neuroses, I would designate those phenomena which simulate a morbid condition of an organ, unaccompanied by any structural changes in that organ, and which are the result of a reflex action, a sympathetic hyperesthesia, due to uterine derangements, and demonstrated to be unquestionably so dependent by being intractable to direct local medication, but yielding at once upon treatment of the causal pelvic disorder."

"They are entirely distinct from the transitory and variable symptoms of hysteria which I am inclined to place among the cerebro-spinal affections, and which are but very indirectly influenced by the condition of the uterus or its annexa. Moreover, the hystero-neuroses are generally found in women who can by no means be called hysterical in the sense in which this word is ordinarily used." This, and what follows in the rest of the paper, make the most rational discussion of the subject that has come under my observation. It places the matter upon a more scientific basis than has been done heretofore. There are some claims made in the paper which I take exception to; the following for example, that "these nervous symptoms are all dependent upon the same cause, a pathological condition of the womb." That such disorders of the nervous system are caused, at times, by uterine disease, must be admitted, but the same abnormal nervous phenomena can be traced to the ovaries. They exist when the uterus is perfectly normal, and while there are symptoms that point to ovarian disease as the probable cause of the nervous disorder. The class of cases that are most confusing, are those in which there is disease of both uterus and ovaries. Then it is impossible to decide how much of the nervous disturbance is due to the uterus and what proportion of it is caused by ovaries. It has been the rule, with others as well as Dr. Engelmann, to attribute all the symptoms, local and general, in such cases to the uterus, and there is apparent good reason for so doing, in the fact that the nervous symptoms disappear in some cases, wholly or in part, upon the recovery from the disease of the uterus. Although treatment of the uterine disease gives relief to the nervous system, that should not be accepted, without qualification, as proof that the uterus alone is responsible for the nervous affections. Disease of the ovaries may be present in such cases without being detected, being much more difficult to diagnosticate than uterine disease. Again, disease of the uterus affects the ovaries sometimes, either through sympathy or by contiguity, and if the primary or uterine disease is removed, general improvement of the patient will often follow. The treatment which cures the uterine disease may also relieve the co-existing disease of the ovaries, the presence of which had not been suspected. Occasionally we find patients who do not recover when the uterus is restored to its normal condition. They improve, but do not become freed from all their bodily and mental ills. There are symptoms of disease of the sexual organs, which linger and appear to keep up the nervous disturbances. In such cases the ovaries, if interrogated, generally give evidence of disease. These facts can all be verified in practice, and they show a fallacy in the reasoning of those who ascribe so much to the uterus in the etiology of nervous diseases.

The more closely this subject is investigated, the more complete the evidence becomes in favor of the fact that the ovaries exert the highest influence in the production of those neuroses that occur in women.

The nature of many of the diseases of the ovaries and their clinical history being imperfectly understood, it naturally follows that, in this department of medicine, the art of diagnosis falls short of the demands of every-day practice.

It is often very difficult to determine the character of some ovarian diseases, and to estimate the effect exerted by them upon the nervous system. All forms of morbid nervous phenomena may arise from causes other than disease of the sexual organs, and hence there are no constitutional symptoms that are diagnostic of ovarian affections. It becomes necessary, therefore, to determine first that there is disease of the ovaries present, and then to estimate how far the nervous symptoms are dependent upon the local affection. In all the inflammatory affections of the ovaries, a fair degree of accuracy can be obtained in diagnosis from the symptoms and physical signs of ovaritis such as are given in our text-books, and if the clinical history shows that the nervous derangement followed the development of the ovarian disease, it may be inferred that the former is secondary to and dependent upon the latter. The same methods of investigation apply to displacements of the ovaries, and as my present purpose is to allude briefly to principles rather than give details, I refer to the paper of Dr. Paul F. Mundé, in the fourth volume of the Transactions of the American Gynecological Society, for a full discussion of this part of the subject.

The various forms of menstrual derangement due to lesions of the ovaries are much more difficult to diagnosticate. Amenorrhea, irregular and scanty menstruation, may be safely attributed to defective development or functional inactivity of the ovaries, when there is nothing in the general health or condition of the other sexual organs to account for them. The diagnosis of ovarian dysmenorrhea is simple enough, as a rule, when uncomplicated with diseases of the other pelvic organs. The location and character of the pain, the time when it comes on in relation to the menstrual flow, and the tenderness to the touch, are sufficient to show that the ovaries are at fault, although we may not be able to tell the exact nature of the lesion.

In the more grave diseases of the nervous system, such as epilepsy and nymphomania, that are presumed to be due to ovarian disease, the diagnosis is sometimes exceedingly difficult. There is perhaps no problem in gynecology more difficult to solve, and much, very much depends upon a correct solution of it. To trace the cause of an epilepsy to the ovaries, and then cure the sufferer by removing the offending organs, is surely one of the greatest triumphs of modern science and art. But to remove the ovaries under the guidance of a mistaken diagnosis, and find that the patient is no better, but perhaps worse for the treatment, is one of the greatest failures that can fall to the lot of any one. The varied results which have occurred in the practice of Battey and others, clearly show that the highest authorities are rather uncertain in the diagnosis of this class of affections. When the clinical history indicates in a given case that the ovarian disease preceded the epilepsy or whatever nervous disease is present, and that the nervous symptoms are most marked during ovulation and menstruation, it is good evidence that the ovarian disease stands in a causative relation to the affection of the nervous system. There are cases in which the nervous troubles occur only during functional activity of the sexual organs, and then the diagnosis is more easily made. In others, the processes of ovulation and menstruation do not affect the nervous system unfavorably at all, so far as we can see—a fact that tends to show that the sexual organs are not involved in the question at issue. We must also bear in mind that some nervous affections caused by an abnormal influence of diseased ovaries, may continue after the ovarian disease has subsided. It is not enough to know that the sexual organs constituted the first link in the chain of pathological lesions. Evidence of the immediate presence of ovarian disease should be obtained before deciding as to the cause of the nervous symptoms. It is equally difficult to decide whether an excessive or perverted sexual appetence is due to the ovaries, or depravity of the brain from indulgence or lack of moral control on the part of the patient. Here also the diagnostician must depend largely upon the history to show whether the primary departure from health was ovarian or cerebral. The disorder may appear first in the brain, and the sexual organs may become secondarily affected through perverted emotions. There is still another condition that is liable to be mistaken for ovarian disease: I refer to pelvic pain and reflex nervous symptoms caused by the products of pelvic peritonitis and cellulitis. I have been much interested in noting the frequency with which old adhesions have been found in the cases submitted to Battey's operation. In such cases the ovaries, if involved at all, are not usually the offending organs, but the injured ones, and should not receive the highest consideration in making a diagnosis.

A case related by Dr. Battey, at the last meeting of the American Medical Association, illustrates this point very fully. The old adhesions were so great as to render removal of the ovaries impossible, but the patient was much relieved of her symptoms after the attempt. The benefit came, no doubt, from breaking up the adhesions, and thereby relieving, for a time, the tension and pressure upon the pelvic nerves, and it is doubtful if a better result would have been obtained if the doctor had succeeded in removing the ovaries. To distinguish ovarian disease from pelvic pain caused by the products of an old inflammation, is sometimes quite easy. The past history of the patient, preternatural immobility of the pelvic organs, detected by manual examination, and the irregularity of the paroxysms of pain, are generally sufficient to show the nature of the affection.

It does not appear to be necessary to enter very fully into a discussion of the treatment of ovario-neuroses in this connection. The subject involves the treatment of a great variety of nervous symptoms, and also the management of the ovarian diseases which cause them. The former are fully discussed in works upon diseases of the nervous system, and the latter are to some extent noticed in our works upon gynecology. There is perhaps a tendency among practitioners, in the management of such cases, to devote exclusive attention to either the nervous system or the sexual organs, in place of treating both at the same time. Although in some cases the nervous affections will disappear as soon as the ovarian disease is cured, the great majority require both local and general treatment.

In amenorrhea, irregular and scanty menstruation, due to defective development or functional inactivity of the ovaries, local stimulants should be employed. The most valuable of these is electricity. Indeed, the only benefit that I have observed from the use of this therapeutic agent in the treatment of menstrual disorders, has been in amenorrhea due to defective ovarian influence. The establishment of a normal menstruation is almost sure to be followed by an improvement in the condition of the nutritive and nervous systems. The same effect is observed, in congested irritable states of the ovaries, after normal co-habitation. The sedation which follows functional action is as marked in its restorative action upon the nervous system, as inaction is detrimental.

The question of advising or sanctioning marriage in cases of ovario-neuroses is of very great importance. It is generally beneficial in irritable and congested conditions of the ovaries, and is therefore admissible, but it is almost always disastrous in inflammatory affections and prolapsus. When there is some definite pathological lesion present, we can employ the best recognized means for its relief; for example, in prolapsus of the ovaries, mechanical means can be used to support them. A pessary may be made to hold them up, or the tampon may answer that purpose better. Postural treatment, that is the knee-chest position, should be taken several times a day and maintained as long as the patient can tolerate it. Pain and tenderness due to congestion or inflammation may be relieved by iodine used per vaginam. Iodoform used in the same way is occasionally a valuable sedative. Suppositories of belladonna give relief in some cases. Counter-irritation applied in the iliac regions is often valuable. Tincture of iodine, blisters, croton oil dissolved in ether, and the actual cautery have all been employed with benefit. The bromides are of great value in some of the obscure forms of ovarian disease. I prefer to put the patient fully under the effects of this drug. That can be best accomplished by giving large and often-repeated doses, until its characteristic effect is produced. My colleague, Prof. Armor, suggested for this purpose bromide of sodium, as being better borne by the capricious stomachs of women having ovario-neuroses. Conium may be used in the same way. I do not think that the prolonged use of either of these medicines is useful, at least in large doses. If benefit is observed after the free use of a remedy, smaller doses may be continued, care being taken not to reduce the strength of the patient, or derange the digestive organs. At all times it is necessary to employ every means to improve the strength of the patient, and hence the bromides should be combined with tonics. It is very important to keep the bowels free: constipation greatly aggravates the suffering, especially if the left ovary is involved. In one patient, who came under my care, the suffering caused by the action of the bowels produced a nervous agitation almost amounting to mania.

Opium, chloral, and alcohol often give great relief, but they are dangerous, opium especially should be avoided, because patients who have ovario-neuroses very easily acquire the opium habit.

The following cases are given to illustrate the views set forth in the preceding pages.

CASE I.—*A person in whom the mental and physical attributes of the female sex were well developed while the uterus was rudimentary:* Mrs. E. S. B., 30 years of age; medium size; sanguine, nervous temperament; married 14 years. At the age of sixteen she developed all the characteristics of womanhood. Her mammary glands developed and the pelvis acquired the female outlines, but she never menstruated. The external genital organs were normal. The cervix uteri was small. In place of the body of the uterus there were two bodies about an inch long and half an inch wide, which extended outwards and backwards from the cervix. The most careful probing failed to discover any cavities in these rudimentary bodies. Above the imperfect uterus the ovaries were found, and they appeared to be normal in size and shape.

This case tends to prove that the sexual characteristics depend upon the ovaries.

Case II.—*Dysmenorrhea due to ovarian disease, and that which was presumed to be painful ovulation, due to the same cause.* The patient was a strong, well-developed woman, 22 years of age. She began to menstruate at sixteen and continued to do so regularly and without pain until she was twenty. At that age she married, and since that time has always suffered at her menstrual periods. The pain is located in each side of the pelvis and is most severe on the left. It begins about a week before the menses and continues during the first two days of the flow, and then gradually subsides. When menstruation begins, she usually has an attack of fainting or loss of consciousness, but no convulsive movements. In describing these attacks, she states that a strange feeling begins in the lower portion of the abdomen and gradually rises until it reaches her head, and then she loses herself. When her bowels move, she has a pain which resembles that which occurs before menstruation; especially is that the case when she is constipated. The pain that precedes the menses, was presumed to be due to ovulation occurring in the diseased ovaries.

Case III.—*Derangement of the nervous system aggravated at the menstrual period. Enlargement, prolapsus, and tenderness of the left ovary.* The lady was 42 years old, had been married fourteen years and had had three children. Her health was good until she nursed her first child, when she became considerably exhausted, but it was not until after her last confinement, nine years ago, that her present troubles began. During that time she was under treatment by a number of doctors of both sexes. Her condition when I first saw her was as follows: She was rather emaciated; had a capricious appetite; tongue coated, skin dry and sallow; sad, anxious and restless expression of face. She gave a long list of nervous symptoms that need not be recorded. Menstruation was regular and natural in character, recurrence, and duration, but attended with peculiar nervous disturbance. A feeling of discomfort in the pelvis and lower portion of the abdomen, which she had at all times, increased a few days before the menstrual flow. Repeated short chills come on after the increase of the pelvic distress and then she becomes extremely exhausted and faint and is obliged to remain in bed. The faint, exhausted feeling comes on about the time that the flow begins, and it continues until near the end of menstruation. The pelvic organs were found to be exceedingly tender, sufficiently so to make an examination very difficult. The uterus was normal, excepting that the parts around the external os were indurated from the use of caustics in her former treatment. The left ovary was displaced downwards and towards the centre of the sac of Douglas. It was also enlarged and exceedingly tender. Under treatment directed towards the relief of the ovarian trouble, she slowly improved ; she became less nervous and suffered much less at her menstrual periods.

CASE IV.—*Illustrates prolapsus of the ovaries associated with retroversion of the uterus in the second degree, and causing great nervous derangement.* The patient was 23 years of age, single, large in size, and presented all the objective evidence of a fine constitution and good health. She began to menstruate at fifteen and continued to be regular and normal in that function up to the time when her local disease began. When she was twenty years old, she was overtaxed in the practice of her profession, that of a professional singer, and then she began to suffer from pelvic tenesmus and pain in the iliac regions. These symptoms were aggravated by standing and singing, especially so at her menstrual period. Her nervous system became very irritable and her disposition changed very markedly. She became emotional and gloomy, had frequent attacks of headache and a great variety of real or fancied aches and pains. She placed herself in the care of a physician who treated her for congestion of the uterus and retroversion. After some months, a pessary was introduced by the doctor to retain the uterus in place, but her symptoms were all increased thereby. She then came under my care, and I found her wearing an oblong pessary, well curved, which held the uterus in place. The instrument was removed, and a few days after the uterus was found retroverted again. The ovaries were both prolapsed and tender to the touch. It should be distinctly understood that the displacement of the ovaries was greater than that which usually takes place in retroversion of the uterus. They were located upon a line with the junction of the body and cervix uteri, and were both nearer the centre of the pelvis than they should be. The original pessary was introduced after having restored the uterus, but I found that, while it supported the uterus, it made pressure upon both ovaries, and therefore could not be tolerated. Another instrument was used (having a much wider posterior segment and being much less curved) which extended backwards beneath the ovaries and gave them support. She was directed to place herself in the knee-chest position night and morning for a few moments, to favor the elevation of the pelvic organs. From time to time, as the uterus and ovaries rose higher in the pelvis, they were followed up and retained by a pessary more curved upwards posteriorly. In response to this treatment, her nervous symptoms gradually disappeared and she was able to return to her usual duties. In this case all constitutional and local treatment, except what has been mentioned, were purposely omitted in order to decide how far the constitutional symptoms were due to the prolapsus of the ovaries. In this connection a number of cases of inflammation of the ovaries might be given, but nothing could be added to that which is to be found in recent works on gynecology.

CASE V.—*Epilepsy and painful ovulation due to some inflammatory disease of the ovaries.*

The patient was 21 years of age, single, well developed and in good general health. Her father, brothers, and sisters have always been in good health. Her mother began to menstruate at seventeen years of age and about that time she became subject to epileptic convulsions which recurred at her menstrual periods. She continued to have epilepsy for four years, when her second child (the subject of this history) was born. From that time she has been free from convulsions. The patient arrived at puberty when she was 14 years old, and at that time she had a convulsion. One month afterwards, she menstruated for the first time. Ever since then she has had convulsions from four to six days before the menstrual flow. She is first taken with severe pain in the region of both ovaries. When this has continued for a day or two, she has one or two convulsions. The pain still continues until the flow begins, when it subsides almost entirely until about a week before the next period. The menses are scanty and last only three days. She occasionally has epistaxis. Several times she has missed her menses, and then the pain and convulsions have been more severe at that time. This, and the fact that the pain is relieved when the menses begin, indicates that the menstrual function acts as a sedative to the irritable and congested ovaries. In describing the convulsions, she stated that while suffering from the pain in the ovaries a sudden chilly sensation begins in the lower portion of her body, accompanied with loss of power. This extends up to her head, when she loses her sight, and then becomes unconscious and falls down. The uterus was found to be normal in size, appearance, and position. The ovaries were both in place, but exceedingly tender to the touch.

A CASE OF CESAREAN SECTION TWICE SUCCESSFULLY PERFORMED ON THE SAME PATIENT,

WITH REMARKS ON THE TIME, INDICATIONS, AND DETAILS OF THE OPERATION.

BY

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I propose in the present article to relate in detail the two Cesarean operations which it was my good fortune to perform on the same patient successfully for mother and children, and then to discuss the indications for the operation, the time for its performance, the reasons of the unfavorable results so generally met with until very recently, and various points in the operation itself which my experience has taught me.

The repetition of the operation on the same patient is, as might naturally be supposed from the unfavorable results referred to, a comparatively rare occurrence, and every such case in itself, therefore, merits publication. I had intended to give a full list of every case of the kind to be found in literature, but my opportunities for consulting foreign periodicals is so limited that I have been reluctantly obliged to confine myself to a mere compilation.

The woman upon whom these two operations have been performed is Mrs. Marie Kaiser, aged now 34, Bavarian by birth, and the wife of a tailor of this city.

She was the youngest of six children; was affected with rachitis when a year and a half old. Her father died of phthisis at that time. She was placed in a hospital for children, and remained in the institution until she was two and a half years of age. She married at twenty-one, and since has been pregnant five times. The first time the fetus died in utero, and was expelled in a week afterwards. She thought she was pregnant about six months when this event occurred. Twice she had abortions, at three and four months respectively, once produced by the physician in attendance, and once from some cause unknown.

About the middle of March, 1875, I was consulted by the patient and requested to take charge of her case in her then expected confinement. I had attended her some years previously for uterine disease, and then, upon making an examination, became aware of malformation of the pelvis at the inferior strait.

The pubis was two and a half inches wide, and inclined backward inferiorly. The concavity of the sacrum was very great, while the coccyx curved forward like a hook.

She was advised then of the abnormal condition, and of the importance of consulting a physician in the early months of any pregnancy. The case passed into other hands afterwards, and I did not see her again until the time above mentioned. She was at this date seven months advanced in her pregnancy.

At this consultation, it was my opinion that the deformity of the inferior strait would permit the passage of the child in a viable condition. I thought labor should be induced at once. In dilating the womb, it was discovered that the greatest deformity existed in the superior strait, where the promontory of the sacrum, feeling like the head of the child, projected into the middle of the excavation. A very careful examination was made, and subsequently confirmed by several medical gentlemen. It revealed the fact that the greatest antero-posterior diameter of the superior strait was from two to two and a quarter inches. Further attempts at dilating the womb were now abandoned.

We had used great care not to rupture the membranes, and as they were intact, it was decided to let the case go to full term, and then, if after mature consideration it was deemed best to perform the Cesarean section, the child would be more likely to live at that period than at the present time. The patient, taking advice of some female friends at this juncture, declared her unwillingness to have any interference. We could do nothing but wait.

On May 8th, 1875, at 10 A.M., I was called and found slight labor pains. A consultation of several medical friends was called at 3 P.M. At that time we found pains coming at intervals of ten minutes, the bag of waters dilating the os uteri to the extent of one inch.

Auscultation was now resorted to, in order to discover whether the child was alive. It was the unanimous opinion that the child lived, although the mother declared that she had not felt the motions of the child for several days previously.

The question now resolved itself into embryotomy or Cesarean section. Taking into consideration the extremely contracted opening, the risk from embryotomy would be very great to the mother, and one life would be of necessity sacrificed, perhaps both. The Cesarean section gave possibility of life to both. The latter alternative was adopted. The administration of chloroform was begun. Assisted by my friends, Drs. E. P. Gaylord, A. C. Barlow, E. M. Goodwin, M. H. Parmelee, and S. S. Parker, an incision was made through the integument, reaching from the umbilicus to within one and one-half inches of the symphysis pubis. There was marked separation of the recti muscles, and the linea alba was wide, as is usual in advanced pregnancy. Its substance being divided, the peritoneum was reached, and a small opening being made in that membrane, the forefinger of the left hand was introduced, and using it as a director, the peritoneum was divided to the full extent of the external openings.

The uterus being steadied by assistants, it was divided layer by layer, taking care to make the first opening into its cavity at the lower end of the wound, to avoid the placenta should it be attached, as we supposed, anteriorly. Such was unfortunately the case, and as soon as the uterus was opened the placenta was wounded. At once a catheter was introduced through the membranes into the vagina, followed by a large sponge probang, to allow free exit for the waters through the natural passages, thus avoiding their escape into the abdominal cavity. Then using the finger as a director as before, the uterine wound was enlarged to the extent of six inches, when the right arm and shoulder of the child presented at the opening; by rotating the child and flexing the chin upon the breast, the vertex presented and delivery was speedily accomplished. The placenta and membranes were removed through the opening immediately afterwards.

The child (a girl) was alive and cried lustily. At this stage of the operation, there was a great amount of hemorrhage, but, by seizing the womb with both hands to induce contraction, the bleeding was partially arrested. But division of the fibres of the uterus on one side, and contraction of the other fibres caused eversion of the edges and opening of the wound. From this opening the blood flowed freely. Five silver wire sutures were now introduced to close the uterine wound. The sutures were entered about one-quarter of an inch from the edges of the incision, and carried nearly through the substance of the uterus. Each one was twisted tightly twice only and the wire cut off close to the twist, which was then turned downwards into the wound at right angles to the suture, care being taken to approximate the edges of the peritoneum.

The uterus now contracted well, and the hemorrhage ceased. After sponging out with great care all clots from the abdominal cavity, the external wound was closed by using silver wire for the deep sutures, including the peritoneum. Silk was used to unite the integument. Strips of lint, saturated with a mixture of carbolic acid one part, linseed oil two parts, were laid lengthwise over the incision. Strips of adhesive plaster between the sutures, three-quarters of an inch wide and twelve inches long, completed the dressing, and prevented access of air to the wound. A binder was placed around the body, and the patient placed in bed. The whole operation was completed in twenty-five minutes. Aconite and arnica, one drop of each, were given in alternation every hour at first, then every two hours for four days. There was but little reactive fever from the operation under the use of those remedies. Four hours after, the pulse was 100 and soft. Fifteen hours after, pulse 90, soft; complains of moderate pains in hips and back. Twenty-eight hours after, pulse 80; temperature 100°; has taken a little milk and water. Forty-two hours after, pulse 70; temperature 99⅘°. Has taken a pint of beef-tea since last visit; no pain; nursed the baby. Sixty-six hours after, pulse 66; temperature 99°. Ate rice and beef-tea. She made a rapid recovery. Pulse never rose above 100, nor temperature above 100⅖. All the pain of any severity was endured within the first twenty-four hours after the operation. It was not apparently greater than many women suffer from "after-pains." She appeared almost as well as women usually are after labor, and begged to get up long before I was willing. Five weeks after the operation, she performed all her household duties, and June 21st, she walked to my office, a distance of one mile.

After this woman had weaned her child, menstruation was tardily established, and very irregular in its recurrence, appearing at periods varying from two to seven months.

She came to my office several times, fearing that she was again pregnant. Upon examination, I found the neck of the uterus of unusual whiteness, in fact it had an entirely bloodless appearance. This condition existed for some three years, and then regained the normal color. As she had been so irregular, a suspicion of pregnancy was not entertained by herself, and she did not consult me until her increased size and the movements of the child made her condition a certainty. Premature labor was not induced, for, after a full statement of the possibility of rupture of the uterus at the line of the old incision (as the uterine wall was found very thin at that point in Mrs. Reybold's case when operated upon the second time by Prof. Gibson), the patient, who had expressed an unwillingness from the first for any operative interference, decided to let the case go on to the full term of gestation. She sent for me at 10 A.M., May 22d, 1880; found slight labor pains; these increased in severity until at 4 P.M., I found them regular at intervals of ten minutes, the os being dilated so as to admit one finger easily. I decided to operate. The patient being placed on a table covered with blankets, chloroform was administered, and assisted by Drs. Goodwin, Barlow, Parker, and Gavitt, an incision was made a little to the left of the old line; from about two inches below the umbilicus to within one and a half inches of the symphysis pubis. Contrary to expectation, no adhesions were found between the uterine and abdominal walls. The uterus was freely movable; the right ovary resembled a mass of varicose veins. The left was healthy. It was at first intended to remove the ovaries with Smith's pile clamp and the actual cautery, but in consideration of the danger of hemorrhage jeopardizing the operation, the Fallopian tubes were tied instead with a strong silk ligature about one inch from their uterine attachment.

The silver sutures were seen under the peritoneum as bright as when placed there five years previously ; uterine tissue bleeding easily, it was not desirable to disturb them, and they were allowed to remain imbedded. The uterus was incised one inch to the right of the former incision and a small intramural fibroid was divided, making the thickness of the uterus at that point about one inch. The general thickness was about one-quarter of an inch.

Much hemorrhage took place of a venous character from the site of the fibroid, but not as much as in the previous operation, when the placenta was under the incision. A catheter was passed through the membranes to draw off the waters, the child seized by the feet and delivered easily. It was a boy, and weighed 7½ pounds; it cried loudly as soon as delivered. The placenta and a clot were removed immediately after. The uterus contracted by being held between the hands. Twelve horse-hair sutures were passed through the sides of the incision, commencing half an inch from the edge and including about one-half the thickness of the uterus, great care being taken to unite the peritoneal edges. So many were used because bleeding still took place from the incision; at last three were removed, and silver wire substituted.

Bleeding still continued; during a contraction, the uterus was held steadily, and a finger introduced through the vagina into its cavity and a small clot broken up and removed. After nearly an hour lost in the endeavor to entirely control the oozing of blood, and after thorough cleansing of all clots, the abdomen was closed with silk sutures. A fenestrated rubber tube, about six inches long, was laid along the line of the incision of the uterus, and secured in the lower angle of the wound by passing an iron wire suture through it and the abdominal parietes. Strips of thick adhesive plaster, passing two-thirds around the body, gave support to the abdomen. Over all was laid absorbent cotton wet with a mixture of carbolic acid and water, one to twenty; a binder completed the dressing. Operation commenced at 5 P.M., completed at 6½ P.M. Visited her at 11 P.M. Temperature 100; pulse 90. Complains of some general pain throughout the abdomen, not defined. After-pains quite frequent. About one ounce of blood has escaped through the tube. Gave aconite and arnica alternately every hour.

May 23d, 9 A.M.—Pulse 72; temperature 100°. Has regular after-pains. Nurse removed three napkins saturated with blood; about half an ounce of blood also escaped by the tube. Has taken a quarter of a cup of beef-tea. 6 P.M.—Pulse 72; temperature 100°. Has slept three hours, looks well.

May 24th, 9 A.M.—Pulse 70; temperature 99⅗°; respiration 24. Lochial discharge, bloody sanies. No discharge from the drainage tube, a little pus seen in the wound. Womb feels a little tender on pressure. Patient looks as well as in health, laughs, and says that she "thinks this is the best way." Slept well from 12 to 5 A.M.; she awoke but once. 1 P.M.—Pulse 80; temperature 99⅗°. 8 P.M.—Pulse 72; temperature 99⅗°. Baby nurses; patient looks perfectly well; takes food regularly.

May 25th, 8 A.M.—Found her nursing her baby. Milk coming in slowly. Tongue clean. Pulse 66; temperature 99⅕°. Removed drainage tube. Urine light-colored. No sediment or mucus. 10 P.M.—Pulse 70; temperature 99°. Tongue clean. Laughs and says she is well; and she is. Bowels moved with an enema.

May 26th, 10 A.M.—Pulse 70; temperature $98\frac{4}{5}$°. Very little soreness on pressure in any part of the abdomen. No pus in the wound. Os uteri patulous; no odor from the lochia, which are not abundant (the same was noticed in the former operation). 8 P.M.—Pulse 72; temperature 99.

May 27th, 6th day.—Breasts full of milk. Pulse and temperature same; entire union of abdominal wound in ten days.

Three weeks after the operation, she was down-town to visit some friends.

Has been well and attending to her household duties ever since. Involution of the womb was rapid, and in several examinations made during convalescence the condition of the uterus was found quite different from that of ordinary labor. While after normal delivery there is a soft semi-disintegrated feeling of the os, in this instance it presented to the sense of touch only that of an enlarged uterus; the os small, and cervix firm.[1]

It has been the custom in works on obstetrics, especially those emanating from English authors, to denominate the Cesarean section as the *last resort* of midwifery. I think there is a well-grounded belief that in many instances this is a misnomer, and that it should occupy a position as a primary measure, equal in every respect to those more frequently performed.

The necessity of the operation has perhaps given rise to more discussion than any other subject, and there is yet much difference of opinion as to the limits of and indications for its performance.

The English obstetricians, even now almost servilely accepting the teachings of a century ago, fear to operate unless the contraction of the pelvis is reduced in its smallest diameter—to one and one-half inches—while upon the continent of

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[1] As it was a question of some interest what would be the result of menstruation in this case, after tying the Fallopian tubes, the solution was fortunately determined in so far as it could be, in so short a time as has already elapsed since the operation. Eight weeks after, she had a discharge identical with the menstrual in appearance, lasting for five days, attended with shooting pains in the left ovarian region, hips and thighs, not severe, however, and lasting one day only. Four weeks after, she menstruated again, with no more disturbance of the system than was usual at her menstrual periods. She has menstruated but once since the last-mentioned period.

Europe it is practised when the diameter is from two to three inches. Here is a wide difference, and in the practical results have developed some singular phases of obstetric surgery.

That it should be craniotomy or version in one country, and the Cesarean section in another, would argue, not that there were differences in race or diathesis, but rather that custom or fashion dictated the mode of procedure. "As men's features differ so do their opinions."

Radford goes so far as to say that, even "when delivery by craniotomy is possible, it can be justified on no principle, and is only sanctioned by the dogma of the schools or by usage."

Baudelocque says: "To mutilate a living child in order to avoid Cesarean section is the offspring of ignorance and inhumanity." Gardien, Weidemann, and most of the continental obstetricians, with Bedford in this country, hold similar views, while Osborne, Smellie, Cazeaux, Churchill, Simpson, Playfair, and others give as their opinion that craniotomy is to be resorted to as a rule of practice where the antero-posterior diameter of the pelvis lies between the limits of one and one-half inches as the minimum, and two and three-quarter inches as the maximum contraction.

In fact, Dr. Osborne was unfortunate enough to drag a mutilated and decomposed fetus through a pelvis whose minimum diameter was only three-quarters of an inch, and the greatest, one and three-quarter inches. I say unfortunately, for no one can estimate the deaths, fetal and maternal, that have resulted from this fact, authoritatively promulgated as a rule of practice, when, in all human probability, such a recovery would not again occur in a thousand cases.

For a better understanding of the relative mortality of different obstetric procedures, I have placed them in tabular form, and they are derived from the best sources at my command. Taking one hundred operations as a standard, they are best studied in that manner. It will be seen that, in the comparison of the Cesarean section with delivery at the pelvic brim, "or the high forceps operation," the cases are divided between the average for the whole number reported, and those which come under the denomination of "timely" or early operations.

	AUTHORITY.	OPERATIONS.	DEATHS.	MOTHER.	CHILD.
Unassisted, tedious labor....	Mr. Philip H. Harper,	100	24.54	4.54	20.
Premature labor........ ..	M. Figueira,	100	42.20	2.14	40.6
Version	F. Churchill,	100	40.14	7.14	33.
Forceps....................	F. Churchill,	100	23.12	3.12	20.
High forceps operation, or delivery at pelvic brim; all cases.	Harold Williams,	100	101.30	39.48	61.82
High forceps, "timely".....	H. Williams,	100	88.9	30.3	58.6
Cesarean section, all cases. .	F. Churchill,	100	82.2	53.6	28.6
Cesarean section, all cases (125).	Harold Williams,	100	66.5	48.8	17.6
Cesarean section within 24 hours after labor has begun.	H. Williams,	100	28.	20.6	7.4
Cesarean section, more than once on same patient.	Churchill, Stolz, and R. P. Harris.	100	14.23	6.83	7.4
Cesarean section, all cases "timely."		100	20.63	13.24	7.4
Craniotomy	Churchill,	100	120.	20.	100.
Craniotomy	John S. Parry,	100	137.5	37.5	100.

As regards multiple, or successive operations on the same patient, my statistics are derived from the researches of Churchill, Stolz, and Harris, and comprise one hundred and nineteen operations upon forty-eight women, with eight maternal deaths, or one in fifteen operations—a result due partly to two causes, a tolerance of the operation after its first performance, and because, the condition of obstruction being known, the second operation was probably performed early in labor.

There are no well-authenticated cases in which the date is given prior to 1755, and even since, the details are meagre. Some were repeated, and credit given again to the same operation. I have endeavored, by a reference to the case whenever I could find it, to set the matter right. The American cases were collected by Dr. R. P. Harris.

The number of children saved being given in but few instances in the European reports of the multiple Cesarean section, I have taken the same percentage of those when the mothers were operated upon within the first twenty-four hours after the commencement of labor (which is probably an under-estimate, as the operation being predetermined, every precaution would be taken to save the child).

Date.	Operator or Authority.	Patient or Place.	No. of Operations.	No. child'n saved	Result to Mother.
......	Guillet	......	6 times.	6	Recovered.
......	Le Noir and Lebrun	......	3 times.	3	Recovered.
......	M. Jobert	......	Twice	1	
......	M. Peyronnie	......	Twice	....	Recovered.
......	M. Sonnius	His own wife.	7 times.	......	Recovered.
......	Paris Surgeon	His own wife.	5 times.	......	Recovered.
......	Unknown	Unknown	6 times.	......	Recovered.
......	Unknown	At Aucois	7 times.	......	Recovered.
.....	Count Nessan	......	7 times.	......	Recovered.
1755-9	M. Lambron	......	Twice	......	Recovered.
1797 1801 1805	Mangold and L. Mautz	......	3 times.	......	Recovered twice, died 3d time
1797 1806	M. Bacqua	Gabery	Twice	......	Recovered.
1796 1810	Rhode and Sommer	......	Twice	......	Recovered.
1802 1805	Lorinzer	Groger	Twice	......	Recovered.
1805 1807 1814	M. Maistre d'Aix	Fauve	3 times.	......	Recovered twice, died third time.
1813 1815	Dr. Charmiel	......	Twice	......	Recovered.
1817 1819	M. Locher	Viandes	Twice	......	Recovered once, died second time.
1821 1826	M. Meuin	Cologne	Twice	......	Recovered.
1823	M. Bosch	......	Twice		Recovered.
1823 1825	M. Schenck	......	4 times.	......	Recovered.
1826 1830 1832 1839	Dr. Zwanck	......	4 times.	......	Recovered.
	M. Michaelis	......	Twice	.....	Recovered.
	Weideman	Adawetz	Twice	......	Recovered.
.....	Dr. Boowin	......	Twice	......	Recovered.
......	M. Gardey	......	Twice	......	Recovered.
1825 1826	M. Schmidt	......	4 times.	.....	Died second time.
1824 1826	Dr. Engleturm	Amsterdam	Twice	2	Recovered once, died second time.
1832 1838	Dr. Kilian	Bonn	Twice	......	Recovered.
1840 1844	Dr. Mestonheuser.	......	Twice	......	Recovered.
1846 1849	Dr. Buck Dr. Stolts	......	3 times.	.....	Recovered.
1850	Winckel	......	Twice	.....	Recovered.
1851 1853	D. Docene	......	Twice	......	Recovered.
1853 1855	Stolz	......	Twice	......	Recovered.

Date.	Locality.	Operator.	Age.	Color.	Cause of Difficulty	Conj. Diam.	Result to Woman.	Condition of Woman.	Length of Labor before Operation.	Result to Child.
						inches				
Oct. 14, 1804	St. Pierre, Isl. Martinique.	M. Dariste	..	White.		...	Recov..			Saved ?
Oct. 29, 1806	do.	do.	..	do.			Recov..			Saved ?
?	Donaldsonville, La	Dr. Francois Prevost	?	?	Def. pelvis.	?	Recov..	?	?	Saved.
?	do.	do.	?	?	do.	?	Recov..	?	?	Saved.
1833	Columbiana Co., O.	Dr. Robert Estep	23	Br'net.	Def. pelvis	Und. 2	Recov..	Exhausted	Long and tedious labor..	Dead.
1834	do.	do.	24	do.	do.	do.	Recov..	Exhausted	do.	Dead.
1835	Philadelphia, Pa	Dr. Wm. Gibson	26	White.	Def. pelvis.	2	Recov..	Good	Before rupture of mem.	Saved.
1837	do.	do.	28	do.	do.	2	Recov..	Good	do.	Saved.
1846	Thibodeux Co., La	Dr. J. A. Scudday	30	Black..	Exostosis of sacrum.		Recov..	Good	12 hours	Born feeble soon died.
1849	do.	do.	33	do.	do.		Recov..	Good	A few hours	Saved.
1852	Aktibeecha, Miss.	Dr. W. H. Merinar	24	Black..	Def. pelvis.	?	Recov..	Exhausted	3 days	Dead.
1854	do.	do.	26	do.	do.	?	Recov..	Pains violent..	A few hours	Saved.
1855	do.	do.	27	do.	do.	?	Died....	do.	A few hours	Saved.
1861	Hamburg, Ark	Dr. Isaac J. Newton	35	Black..	Def. pelvis.	?	Recov.	Good	6 or 8 hours; no delay	Saved.
1863	do.	Dr. Robt. M. Dickinson	37	do.	do.	?	Died....	?		Saved.
1856	Richmond, Va.	Dr. Chas. S. Mills	23	Black..	Def. pelvis.	?	Recov..	Fair	4½ hours	Saved.
1867	do.	do.	34	do.	do.	?	Died....	Had dysentery 5 mos. prev.	Nearly 2 days	Dead.
May 8, 1875	Toledo, O.	Dr. S. S. Lungren	29	White.	Def. pelvis.	2¼	Recov..	Good	7 hours of slight labor	Saved.
May 22, 1880	do.	do.	34	do.	do.	2¼	Recov. & well	Good	7 hours of slight pains	Saved.

Number of patients, 48; number of operations, 119; mortality to mothers, 8; number of children saved, rarely stated.

These multiple cases are assumed to be "timely," and, being added to those known as such, we find that the average percentage of all the cases under that denomination will show a lower rate of mortality than any other statistics of obstetric operations. A result, surprising to myself and perhaps to many of my readers. They are given upon the same data and sources of information as are obtainable for any other subject. If statistics are worth anything, they are worth as much for Cesarean section as for any other obstetric operation.

The induction of premature labor, one of the alternatives of the Cesarean section, shows results less favorable than might be expected.

Out of two hundred and eighty cases collected by M. Figueira, six mothers and one hundred and fourteen children died. Of ninety cases collected by Dr. Shippan, seven mothers and seventeen children died immediately after the operation, and eighteen more of the children subsequently. Dr. Lee, with a perseverance and resolute energy worthy of a better operation, performed on the same patient embryotomy twice, and the induction of premature labor *thirteen times*, at periods varying from six to seven and one-half months of her gestation, losing all the children.

Ramsbotham, Simpson, and others have been more fortunate, saving all the mothers and a large percentage of the children.

The average mortality given in the table above is from the cases collected by M. Figueira.

M. Lacour, as quoted by Cazeaux, gives the average much higher. The purport of the foregoing statistical table is to show that the Cesarean section should not be adopted nor designated as the last resort of midwifery, but from the low rate of mortality for both mother and child by this operation, when performed early, it deserves to take rank as a conservative measure of the highest importance to the human family. Unless the medical mind is educated to regard it in this light, and even then, it will perhaps never become popular as an obstetric resource.

The dread of performing it when every step seems so terrible to the feelings of the patient and her friends, the delay of consultations, the hoping against hope that nature will be able to accomplish unaided that which is impossible, let the golden hours of promise pass away, to resort at last, when too late, either to the operation which should have been performed when the woman was in the full tide of health and vigor, or to the inevitable crotchet and perforation, and, in the latter case, as a reward for all her sufferings, to give her a mutilated child, and for herself, perhaps an injury of life-long duration. And just here let me repeat that *time* is the most important element in *all* obstetric operations. Let the accoucheur be alert, ready, and willing to perform any operation that the exigencies of the case demand and his judgment commends for the good of his patient; and when that judgment is formed, let him not hesitate, remembering that he can gain nothing by waiting, if his opinion is correctly formed; that every hour, after the second stage of labor has commenced, more especially if the waters are drained away, adds in an accelerated ratio to the dangers to both mother and child.

To illustrate the advantage of the early operation, I will quote from the excellent paper of Dr. R. P. Harris, in the AMERICAN JOURNAL OF OBSTETRICS for January, 1879, the case reported by Dr. E. D. Basset, which occurred January 29th, 1822, in Nassau, Rensselaer County, New York.

> "A quadroon servant, 14 years of age, had performed the Cesarean section upon herself while lying on a snow-bank. The incision was L-shaped, and extended through the abdominal parietes and the fundus of the uterus. She had delivered herself *per vias naturales* of a fetus which she had buried in the snow, and a second was protruding through the wound. Dr. Bassett removed the fetus, dressed the wound, and she recovered in twenty days. He saw her at service six years afterwards, entirely well."

This girl recovered because she was in good health at the time, was not exhausted in the least by labor, and was operated upon early. In contrast to this is the very instructive case which occurred June 11th, 1845, at East Solon, Courtlandt County, New York, operated upon by the late Prof. Azariah B. Shipman.

> "The subject, Mrs. S. K., was a white primipara of 41, having a fibrous tumor which forced the cervix uteri above the superior strait and to the left side, so that version, the use of the forceps, and craniotomy were impracticable. Mrs. K. was in labor at intervals for *two weeks* before Dr. S. saw her first, lasting

severely for two days, and after an interval of nine days, again for three days more, early in which last the membranes ruptured. Three accoucheurs were in attendance when Dr. S. arrived. The woman by this time was greatly exhausted, had a weak pulse of 120, and an anxious, sunken, and haggard countenance. The operation was considered hopeless by all the consultants, but was performed at the urgent request of the patient. Uterus found of a *dark chocolate color, and parted before the knife as if partially decomposed.* Child of large size, and had been dead for several hours. Woman died of shock and exhaustion in an hour."

Why was not this woman operated upon early? Simply because the principal danger, *delay*, was not thoroughly appreciated.

That women with large fibroid tumors of the uterus do recover from the operation is shown by the success of Mayer, of Geneva, who operated Feb. 1st, 1843, of Dr. Hiron in 1856, and H. Cazin, of Boulogne-sur-mer, June 13th, 1873, saving both mother and child.

Similar conditions as in Dr. Shipman's case have been found by other operators in delayed labors. Dr. Ludwig Winckel, who has had a larger experience than any other operator, speaking of this class of cases, says " there is no attempt at repair, and actual sloughing and loss of substance occurs, the uterine wound gaping widely when death has taken place many days after the operation." What is the cause of this condition of the womb? To understand this question fully, we must study the causes of and the beginning of labor. Nature has her analogies throughout animate and inanimate creation. The ripening of the human fetus may be likened to what occurs in the vegetable domain.

Flint has shown that "towards the end of pregnancy, fatty degeneration takes place in the decidua vera and that portion of the placenta which is attached to the uterus. There is a gradual separation of the outer membrane, so that the contents of the uterus gradually lose their anatomical connection with the mother. When this change has progressed to a certain extent, the uterus begins to contract." The pear is now ripe, " each contraction then separates the membranes more and more; the most dependent part pressing upon the os internum, and the subsequent contractions are probably due to reflex action. The first ' pain ' is induced by the presence of the fetus, and its membranes as a foreign body, a mechanism similar to that which is obtained when premature labor has been brought on by separation of the membranes." As labor advances, the inference is, that fatty degeneration and disintegration of the muscular fibre cells begins to take place in the uterus, commencing with, and continuing during and after labor in the normal accouchement. Should there be pelvic obstruction, no matter from what cause, the breaking down of the muscular structure of the uterus goes on under the continued efforts at expulsion, for there is no attempt at repair. "The pains which had been regular and powerful become irregular in force and recurrence. For a period they may become more rapid and then return less frequently, and with less effect, growing weaker until the characteristic bearing-down effort is lost, and with equal suffering we have the loud outcry, and slight force of the first stage. Other symptoms supervene. After the break-down of the uterine structure, shivering becomes so severe as to resemble slight convulsions. Vomiting becomes frequent and distressing, and green or bilious matters are ejected. The patient is restless, throwing her arms about and repeatedly changing her position. The skin is hot, whether moist or dry; the pulse rises from one hundred to one hundred and forty; the tongue is dry, loaded and furred, with sordes; the mind is disturbed, fearful and despondent; the vagina is hot, with the os uteri tender to the touch. The bloody mucous discharge becomes yellow or brownish in color, and sometimes acrid and fetid. Now, should this case not be relieved, it goes on from bad to worse. All symptoms are aggravated, and new and most formidable ones added. The vomiting becomes more frequent and the matters ejected are dark-colored; the abdomen becomes tender; the jactitation and restlessness ungovernable; the pulse rapid and feeble; the skin covered with cold, clammy sweat; the tongue brown and dry. The patient falls into a state of half stupor, with low muttering delirium, and ultimately death closes this melancholy scene." Such is the graphic picture given by one of the ablest writers upon midwifery. Compare this description with the condition of the patient, and the consistence of the womb found when labor has progressed for days with unavailing effort; when, after all hope has departed, the

Cesarean section has been adopted as the last resort. These patients cannot recover, for the *time* has gone by for nature to make the attempt, the disintegration of the uterine tissue is too great even to attempt to hold the edges of the incision together. And the only hope for the poor patient now must be craniotomy. Therefore, I would, at the risk of repetition, enunciate the proposition to perform the Cesarean section, if performed at all, as early in labor as possible, after the pains are regular and well established; if the os uteri is dilated so as to admit one or two fingers, and permit the free escape of the lochial discharge afterwards, and by all means, if possible, before the membranes are ruptured. The advantage of the unbroken membranes consists in this: There is a moment of inaction of the uterus just after the incision of its wall; long enough to admit of the rupture of the membranes, extracting the child, and delivering the placenta before the uterus begins to contract. Should the waters unfortunately be drained off, the now contracted uterus would invest the body of the child closely, and consequently there would be more difficulty in extraction.

It has even happened, when the membranes were intact before incision, by too long delay, the contraction of the uterus has been so great that the neck of the child has been caught in the opening, and a further incision of the uterine walls necessitated.

The placenta should be removed as soon after the child as possible. Any clots which have formed must be removed also, as they will excite undue contractions if allowed to remain. At this time there is usually considerable hemorrhage; but it soon ceases after the child and secundines are removed. If it does not, take the womb in the hands; placing one on either side, and exert firm pressure upon the body, holding the edges of the incision in apposition, contraction will soon take place.

The question now arises as to the employment of sutures in the uterus, and the kind.

If we look at the action of the uterus during a labor pain (and contractions after labor are essentially the same), it will convince any one who examines the condition carefully, of the great importance of sutures in the uterine wound after this operation. Müller, Michaelis, and Wigand teach that contractions commence at the cervix and travel toward the fundus, returning thence toward the os uteri; during a labor pain the os uteri grows tense from contraction of the circular fibres, which being short, act with great mechanical advantage, and "if the fibres of the cervix contracted with the same force as the rest of the fibres of the uterus, this organ could scarcely be emptied of its contents." The fibres of the body of the uterus having no resisting point at the line of incision, unless secured by sutures, contraction of the longitudinal and transverse fibres, and closure of the os uteri by the circular, must cause gaping of the wound and extravasation of the contents of the uterus into the abdominal cavity; when subsequent decomposition gives rise to fatal peritonitis or septicemia. One can form an idea of the result of the contractions, by making a small slit in a hollow rubber ball, and slightly squeezing it. A second detrimental cause, when sutures are not used, producing mainly the same results as the former, is the rapid fatty degeneration of the uterine walls. The edges of the incision become thin and separated; gaping is produced as in the former case, followed by a fatal result, except in those fortunate cases where union takes place between the uterine and abdominal walls, thus preventing the escape of uterine fluids.

As the fatty degeneration of the uterus after delivery commences on the interior surface, and proceeds towards the peripheral, the sutures being introduced partly through the uterus, the peritoneal surfaces are retained in contact until union takes place, and all danger of escape of fluids averted. This method of introducing the sutures is the more necessary, for as soon as the incision is made and the contents of the womb extracted, *eversion* of the lips of the wound takes place to a great degree, the external edges being beveled off; and as soon as absorption commences below in the interior, the slit would be enlarged, affording ready exit to the fluids. To obviate such results was the aim in the introduction of sutures.

Having had considerable experience with silver wire sutures in abdominal operations, and no unpleasant results from their use; nine years having elapsed since they were used in one case, they were adopted in this instance. Carbolized catgut sutures have been used; but the uncertainty attending the time of their absorption, and the liability of the knot to become loosened, have justly caused their abandonment. In the second operation I used horse-hair, with the idea that it would become softened and ultimately absorbed, as its behavior when kept in water for three months, at nearly the temperature of the body, seemed to indicate, but found that it did not seem to possess the requisite strength and firmness, being too elastic.

AN INTERESTING CASE OF MALFORMATION OF THE FEMALE SEXUAL ORGANS;

REPRESENTING EITHER A RARE VARIETY OF HERMAPHRODITISM, OR OF DOUBLE CONGENITAL OVARIAN HERNIA WITH ABSENCE OF UTERUS.

BY

EDWARD SWASEY, M.D.,

Port Chester, N. Y.

(With two woodcuts.)

THE following case came under my observation at the Hospital for the Ruptured and Crippled, New York City, in March, 1880:

Mary O'Neill, aged forty-six, single, and by occupation a cook. She was born in Ireland, and at the age of eighteen came to this country. She is a person of average height, dark hair and eyes, and having nothing in feature, form, or deportment to suggest that she is not a woman. She has always been in good health. There is rather a stupid, melancholy expression in the eyes and features; and this expression is scarcely ever changed by the passing events and conversation around her. The mouth remains partly open, and the features fairly express her mental state, which is dull and heavy, though she answers questions intelligently.

The face is as free from beard as that of any woman, the skin is soft and delicate, and the complexion fair. The voice is feminine.

She says she has never menstruated, or had any discharge from the genital organs, nor had any periodical pains in the back, thighs, and region of the pelvis. At about the age of fifteen she had a discharge from a small pin-hole opening, at the junction of upper and middle-third of the sternum, in the median line. This discharge has occurred every month regularly since that time, and after continuing a few days would gradually cease, and a thin dry crust would form over this opening.

She says she feels sure that this has been a source of relief to her. It has about the color and consistency of thick cream, and varies in quantity and appearance from time to time. The quantity has always been slight, not more than a drachm or two in a month. The breasts are of normal size, the nipples perfect, and the conformation of the shoulders and chest of the female type. There have never been pains or sensations in the mammary glands as though they were performing any functions. The last time I saw this patient was a few days after this discharge had occurred, and she was able then to force some of this from the opening, and it had the appearance described above. This has gradually been growing less in amount in the past year or two. She believes she has sexual desire to some degree.

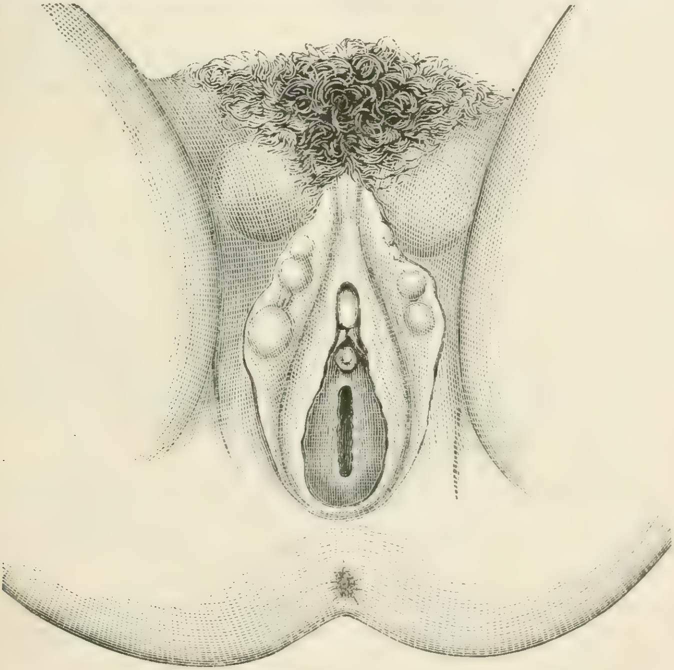

FIG. 1.

At the age of twenty-five she was ruptured on the left side, she believes from a "fright." At the age of thirty-one, another hernia appeared on the right side. For the past fifteen years she has worn a double truss to retain these herniæ, which are of the oblique inguinal variety. It was for the purpose of having a truss applied that she came to the hospital.

Below these hernial masses, and wholly distinct from them, lodged in the labia majora, were two quite hard, somewhat irregular bodies. The one in the right labium was larger than the one in the left, and was the size of a large pigeon's egg. It was partially divided into three portions, so that these could be appreciated through the tissues of the labium. The largest of these was the size of a robin's egg, having the feel and consistency of a testicle of a child five years old. Above this was a body less firm in structure, more irregular in outline, and feeling like a knot of veins.

Above this, again, was another body one-half the size of the first division, with quite irregular outline, and having an almost unyielding hardness.

The tumor on the left side was like its fellow on the right, but was about one-half its size; and having the first two divisions described in that body. From each of these tumors there could be traced upward and into the external abdominal ring a cord, resembling very much the spermatic cord of the male, only of less size. The right labium measured from its free margin to the point where it seems to merge into the tissues of perineum and groin seven centimetres; and its thickness through the contained body was four centimetres. The left, measured in the same way, was five centimetres, and three and a half in thickness.

The cut (Fig. 1) shows the outlines of these labial bodies as they appeared to the touch. To the eye, of course, their shape was not quite so distinct.

These tumors were irreducible, and had always been in their present situation. They had never been painful or tender, nor in any way given evidence that they were under excitement or performing any function. Enlargement or tenderness of these bodies at the time of the alleged regular monthly discharge from the small fistula over the sternum was distinctly denied. They would bear quite firm pressure and rough handling without giving pain. The contour of the pelvis and thighs was that of a female. The mons Veneris was not very prominent, but was well covered with hair as were the labia majora.

These tumors were supposed by the writer to be ovaries. The case was, however, sent to Dr. Paul F. Mundé, at his gynecological class at Mount Sinai Hospital, for a more thorough examination, and for his opinion regarding the tumors. He sent me the following note by the patient, on March 27th, 1880:

DEAR DOCTOR:—Mary O'Neill ought to be named Martin O'Neill. The two bodies in the labia majora are certainly testicles, although there appears to be an inguinal hernia besides. The vagina is about three inches long and perfect, and virginal; hymen also perfect. But there is no uterus, and there are no ovaries. Pelvis is empty, as finger in rectum and sound in bladder show. The curious point is the normal clitoris and the female aspect of patient, breasts and all—chiefly the absence of the usual rudimentary penis.

There is, however, no doubt about the sex, I think.

Yours hastily, PAUL F. MUNDÉ.

Dr. Mundé subsequently informed me that he was to some extent influenced in forming this opinion by the recollection of having read a similar case reported by Dr. Leopold, of Leipzig, a few years ago, in which the person in every respect appeared to be a female; but at the autopsy was found to have a blind vagina, no uterus, and two testicles in the groin. (This case is quoted in full later on.)

A few days subsequently, I described the case to Prof. T. G. Thomas, and he expressed a strong desire to see it. I took the patient to his office, and after learning the history and making an examination, he said he found the same condition that Dr. Mundé had described; but he did not agree with the latter concerning the character of the tumors and the sex of the patient. He believed it a case of double hernia of the ovaries, and he thought the person was undoubtedly a female; as she had the form and aspect of a female, the mammary developments and other characteristics, and had none of the attributes of the male, he could come to only one conclusion concerning her sex.

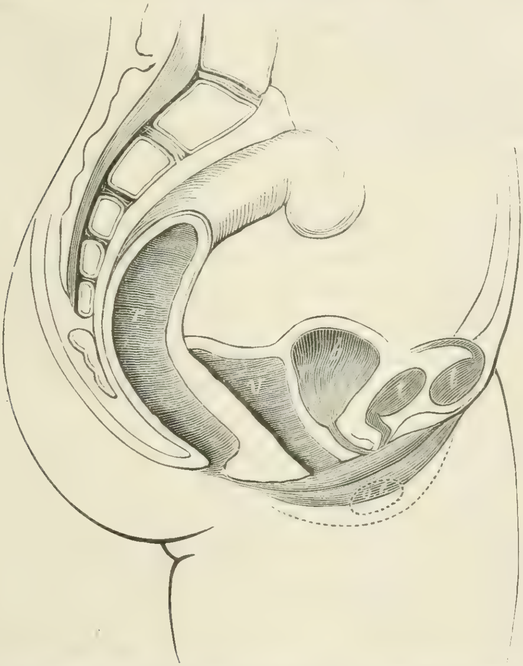

Fig. 2.—Diagrammatic median outline of Leopold's case, answering equally well for mine. The dotted outline has been added by me to show the enlargement of the labium majus by the body contained in it. *v*, vagina; *b*, bladder; *r*, rectum; *t*, *t*, testicles in Leopold's case; *o*, *t*, ovary or testicle in my case.

As the history of ovarian hernia is scanty, and as this case will appear in its proper light when compared with the recorded cases, I propose to give a short résumé of the literature of the subject. I shall make use of the labors of Dr. Thomas Chambers, who has reviewed the subject in connection with a case that he has reported in the Transactions of the London Obstetrical Society for 1879.

It is chiefly through the interest that Dr. Mundé has taken in this case that I am made conversant with this literature.

Pott has always held the place of honor as being the first to operate for ovarian hernia. But Dr. Chambers brings forward quite conclusive evidence that it was Mr. Edward Nourse who performed the operation, and that Pott, who was a junior colleague of Mr. Nourse's in St. Bartholomew's Hospital, assisted in the operation and reported the case.

The patient was a servant, aged twenty-three, who was suffering from an acquired, double inguino-ovarian hernia. The ovaries could not be returned, and as they caused so much pain that she could not follow her employment, they were successfully removed. It is not stated whether these pains were periodical or not.

Meadows reports a case (Trans. Obs. Soc., 1861) of an acquired right inguino-ovarian hernia in a servant, aged twenty-three. In this case there were very severe pains at the menstrual periods for three years, and she was unable to obtain her living. This was removed by Mr. Lawson, and recovery was perfect in a month. " Menstruation became normal after the second period."

In McCluer's case (AMER. JOUR. OBSTET., 1873–74), the left ovary had passed through the femoral opening. The patient was thirty-eight years old, married, but never pregnant. " She had noticed a lump in her left groin for eight years. During the first six years, it gave her neither pain nor annoyance, but suddenly became exceedingly painful during a menstrual period, about two years before she came under McCluer's care." This was removed successfully.

Holmes Coote (*Lancet*, 1864) found an ovary in the sac of a strangulated hernia, for which he was operating. The patient died on the fourth day, and a post-mortem demonstrated that there was no uterus. The vagina was a small cul-de-sac a little more than an inch in length. It was reported, though not authenticated, that menstruation was regular during life.

Oldham had under observation (Proc. Roy. Soc., Vol. VIII.)

a case in which "the uterus and vagina were absent, while the other sexual characteristics were those of a well-formed female. There was a swelling in each groin which had not been noticed before puberty." The one on the right side was as large as a goose egg, and was often painful. It would disappear for a time and then reappear. The one on the left side was the size of a walnut, and could be returned into the canal. After a time they would become, at intervals of three or four weeks, enlarged and painful. This condition would continue for a number of days, and then it would gradually pass away. In a second case he records, the person was in appearance a well-formed female. In each groin there was a tumor the size of a chestnut, very movable, but never painful.

Chambers says that Barns and Laumaigne each saw one case, but he gives no particulars. Gardner saw a patient with a right inguino-ovarian hernia. At each period it would enlarge to the size of an orange and become very painful.

Englisch saw three cases.

In 1871, Englisch published a résumé of this subject, and Dr. Chambers quotes from the "Biennial Retrospect of Med. and Surg. for the New Sydenham Soc., for 1871 and 1872," his observations: "Of the thirty-eight cases he had collected, twenty-seven were inguinal, nine femoral, one sciatic, and one obturator. In one-third of the inguinal cases, the displacement was double. In seventeen cases, the hernia was congenital. All the congenital cases were inguinal, and all the double cases were also inguinal. . . . The displaced ovary was in fifteen cases normal, in seventeen inflamed, in five cystic, and in one cancerous degenerations had manifested themselves. In fifteen cases of congenital hernia, thirteen were irreducible, while in fifteen cases of acquired hernia, three only were irreducible."

In February, 1877, Esmarch removed both ovaries that were lodged in the groins of a patient twenty-two years of age. These were painful every four weeks, they were movable and symmetrical, and irreducible. The patient alleges to have found these swellings at the age of fourteen, but Chambers assumes that they were congenital. They were the size of pigeons' eggs. She had never menstruated, but had periodical pains in the loins and thighs. No trace of vagina or uterus could be found, though the external genitals were well "conformed." On removal, these bodies were found to be ovaries.

Chambers' case is as follows:

Emily D., aged twenty-four, a housemaid, born in Dublin. "She was tall, five feet nine inches, having a well-developed female bust, was rather good-looking, though she had a kind of melancholy in her expression of face most difficult to define."

Her hair was dark-brown; eyes hazel, having a languid appearance. Her voice was feminine, though not musical. The breasts were well-developed, and rather above the average size for a person so thin. The nipples were absent, their site being marked by a circular rose-colored spot the size of a three-penny piece. She never menstruated or suffered from leucorrhea or periodical pains about the pelvis. In each groin there was an oblong body irregular in outline, and very movable, directed obliquely downwards and inwards, the lower inner margins resting against the outer borders of the recti muscles. (The appearance of the hernia and genital organs of my case, given in Fig. 1, very much resembles the diagram of Chambers.) The right tumor measures three by two and a half inches, the left, two by one and a half inches. They were tender and sensitive to the touch; they have always occupied their present position as long as the patient can remember. They have been painful at times for several years, more especially during the last three or four, when accidentally knocked, which not infrequently happened when engaged in her domestic duties. When she was twelve years of age, she fainted in the street, and was taken to Sir Patrick Dun's Hospital. While there, the doctors discovered the lumps, but could not "put them back," and a double truss was ordered. This could be worn only at short intervals, as it caused much pain and chafing over these tumors. "From this time they gradually became larger and more painful from year to year."

On March 19th, 1879, Dr. Chambers removed these tumors at the Chelsea Hospital for Women, London. "She was placed under chloroform, in order that a careful examination might be made of the internal as well as the external organs of generation, and for this purpose she was placed in the lithotomy position. The first thing noticed was the total absence of hair from the pubes. The mons Veneris was not very conspicuous. The labia majora were small and free from fat. The clitoris was small but well formed, while the nymphæ were rudimental. The vagina was a smooth, cone-shaped opening, about an inch in length, having its cone directed upwards behind the pubes, terminating in a cul-de-sac." There were no hymen nor carunculæ myrtiformes. At the roof of this cul-de-sac was a triangular opening which formed the meatus urinarius. There was no trace of os or cervix uteri to be found in this rudimentary vagina. The examination was repeated by four individuals to detect a uterus or ovaries, and they were found to be absent. The patient was believed to have very little or no sexual desire. The pelvis was large and well formed on a female type.

This careful examination "raised the question as to whether this was not an example of that rarer form of hermaphroditism, called 'transverse hermaphroditism with the external parts female.'"

After removal of these tumors, they were examined microscopically by a committee appointed by the Society. They were found to be testicles, having in some parts of the gland a tubular development equal to that of a child two years old.

In the discussion that followed, Dr. Wiltshire "thought the case one of the most instructive and important that had been brought before the society for some time. It showed that cases of true hernia of the ovary were certainly rare; and some of the supposed instances of it were, like the case in question, examples of imperfect male creatures." He had from time to time observed one case of true ovarian hernia in a married woman who had borne children.

Dr. John Williams said: "Hernia of the ovary was undoubtedly met with, but it was generally, if not in all cases, acquired; and there was no case recorded of congenital hernia of both ovaries, in which the evidence was such as could be trusted. No examination had been made of tumors in the groin, and evidence thus obtained of their true nature. In Dr. Chambers' case, however, this was supplied, and the nature of the tumors put at rest. They were testicles and not ovaries. It was to be expected that they were testicles, for these organs pass down the inguinal canal normally in order to descend to the scrotum, whereas the ovaries are by no means likely to enter the inguinal ring. Moreover, inguinal hernia was rare in females. In this case, there were no symptoms which could be attributed to ovarian function, for there was no molimen. . . . *It is far more probable that congenital tumors in the groin are testicles than ovaries, and no case should be accepted as ovaries, unless the evidence on the point sets it beyond cavil.*"[1]

Dr. Routh thought "sufficient stress had not been laid on the marked increase of size, in case of an enlarged ovary, as opposed to a testicle when either were hernia, and as to the pain experienced. At the periods, this would necessarily be more intensified, in case of an ovary rather than in that of a testicle. Both these peculiarities were certainly and almost always noted in instances of a displaced ovary, behind the uterus or between it and the rectum, when occasionally synchronously with enlargement the pain was so intense as almost to justify Battey's operation being adopted as a curative measure."

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[1] Italics are mine.

In Leopold's case, reported in the *Archiv für Gynäkologie*, Vol. XIII., 1875, and represented in the diagram (Fig. 2), the patient

"was a peasant woman, fifty years old, married twenty-five years, never menstruated, never had a child, and healthy from her youth up. Has two married sisters, neither of whom ever menstruated or had children. Has had frequent connection with her husband.

Patient had a liver-tumor (carcinoma) and bimanual abdominal examination led to the detection of the abnormal condition of the sexual organs.

The examination of the external sexual organs showed nothing abnormal, except that the mons Veneris was unusually prominent.

There was a vagina, about eight centimetres long, but no cervix and no uterus.

In the cul-de-sac of Douglas, there could be felt a cord which was not very sensitive to pressure, slightly movable and hard. At its lower part it was almost as hard as stone. This cord or fibrous mass was more closely connected with the rectum than with the vaginal tissues.

The author regarded the cord as the result of cicatricial thickening of the peritoneal folds in the cul-de-sac, following a chronic peritonitis. This view was supported by the existence of carcinoma hepatis.

In the upper part of each labium majus, a little to one side and below the symphysis, was situated an oval, almond-shaped body, as large as a chestnut. Each body had several fine cords, which united, passed upward over the horizontal ramus of the pubis, and then downward into the pelvis.

The existence of these bodies accounted for the prominence of the mons Veneris. The bodies were regarded as testicles and epididymis. No autopsy was obtained.

Résumé. (1) The body of patient was slender; habits and inclinations purely feminine.

(2) Mons Veneris prominent, owing to

(3) A testicle and epididymis, on either side, each with its vas deferens returning into the pelvis.

(4) Normal developed vagina; no demonstrable uterus or ovaries.

(5) A roomy, normal, female pelvis, with broad outlet.

This malformation is called in Klebs' classification, 'pseudohermaphrodismus masculinus.'"

Up to the time of Leopold's article, there were only three reported cases which are good representatives of this group:

(1) *Ricco*, Cenno Storico, su di un Neutro-Uomo, p. 5–7 (Todd's Cyclopedia, II.): "Maria E., 80 years old. Had lived as a married woman. External organs normal. No carunculæ myrtiformes. Vagina six centimetres long. No uterus, tubes, or uterine ligaments. Internal sexual organs were masculine. The testicles were located as in the case above cited, and each had an epididymis and vas deferens. Vesiculæ seminales were located between bladder and rectum; had normal, oblong form; no prostate. Other pelvic organs (bladder, rectum, ureters) were normal. Pelvis and build of body correspond in form and size to the masculine type.

(2) *Steglehner* (De hermaphroditorum natura, Bamberg and Leipzig, 1817, see Kussmaul, Mangel der Gebärmutter, Würzburg, 1859). An elegant young lady of slender figure, 23 years of age. Normal vulva and narrow vagina, small clitoris and nymphæ. Voice rather masculine. Thorax, hips, abdomen, all feminine. Breasts well developed. Death from tuberculosis. At post-mortem, no uterus, no ovaries, no tubes were found; but testicles and epididymis in the inguinal canals, the construction of which was normal. Two deferent ducts proceeded from these bodies, and extended to the seminal vesicles behind the bladder. From the vesicles two seminal ducts led to the vaginal cul-de-sac, where they terminated by distinct openings.

(3) *Giraud* (Récueil périod. de la soc. de méd., II., 315). Adelaide Preville, 40 years old. Same as above, except a large clitoris (like penis). Patient had a good beard, a broad pelvis, and fine feminine limbs. At the autopsy it was found that she had a prostatic gland, deferent ducts, seminal vesicles, and two testicles in the cutaneous folds at either side of the clitoris. Vagina blind. Urethra as in the female. No uterus, no ovaries, and no tubes. Patient had been married, and her real sex had never been suspected.

Figure 1 shows a front view of my patient, and represents the labia majora and the outlines of the bodies contained in them; also the inguinal herniæ.

Figure 2 is that of Leopold's case, and it represents so perfectly the intra-pelvic organs in my case that I have introduced it here. The dotted lines that I have added represent the pendulous labium majus and the tumor.

Unfortunately I have not the decisive evidence concerning these bodies that a microscopic examination alone can give. She was offered a bed in St. Luke's Hospital to have the herniæ operated upon, and if deemed judicious, to have these tumors removed. She refused to have any operation performed, and quite reasonably so, as she suffered no inconvenience, except that incident to wearing a truss.

But without this complete evidence we can see how strikingly it resembles Chambers' case. The larger size of the right labial body in both cases will be noted. In one respect it more strongly resembles the male than his, in the fact that the tumors were lodged completely in the labia majora, which are the analogues of the scrotum.

Dr. Thomas regarded the discharge from the opening over the sternum as a form of vicarious menstruation. Dr. Mundé put very little or no confidence in the patient's statements regarding this peculiarity, because she frequently contradicted herself as to the regularity of the discharge, and because it seemed as though her accounts of the periodical appearance and significance of the fatty secretion had been talked into her by previous examinations by her physician (now deceased) several years previously. Dr. Mundé tells me that, on hearing him speak of her to his class as being the subject of a sexual malformation, she volunteered the statement that her physician had told her fifteen years ago (therefore soon after the herniæ appeared) that she was not formed like other women.

We have seen that the appearance and figure are really no criterion from which to form an opinion regarding the sex of these persons.

I do not agree with Dr. Williams that inguinal hernia is rare in females. It is the variety most commonly met with in females who have never borne children.

The case bears out Englisch's statistics in that the tumors were congenital, inguinal, double, and irreducible.

This is either a unique case of double ovarian hernia, if Dr. Williams' statement is correct, or we must place it in the same category as that of Drs. Chambers, Leopold, Steglehner, Ricco, and Giraud. My reasons for believing the latter to be the case, viz., that the individual was a male, and not a female, as her general appearance would seem to indicate, are the following:

1. The peculiar shape and size of the bodies in the labia majora, and their distinct resemblance, as regards epididymis and vas deferens with usual varicosities, to the testicles.

2. The absence of enlargement or tenderness of these bodies, at the same time as the alleged regular recurrence of the caseous secretion from the external fistula, which would certainly have occurred if that discharge had really been of the nature of vicarious menstruation.

3. The contradictory statements of the patient as to the regularity of this discharge, its minute quantity, and the improbability of so small a fistulous track (barely one centimetre deep, and admitting only the finest probe) being the seat of a discharge equivalent to the menstrual flow.

4. The possibility of the occurrence of this peculiar variety of hermaphroditism, as shown particularly by the cases reported by Steglehner and Chambers, in both of which the persons were in every particular as womanly as my patient, and still the post-mortem and microscopical examination of the bodies in the groin (supposed ovaries) revealed them to be testicles. It is for these reasons that I think there is quite as good cause to consider the labial tumors in my case to be testicles as to pronounce them ovaries because the patient has the female type, as was done by Dr. Thomas. This, the cases reported show to be no criterion. Besides, the appearance of the tumors in my case is evidence in favor of their being testicles.

Unfortunately, the correctness of this view must remain unsettled until the opportunity arrives to decide whether these bodies are testicles or ovaries. The case is, in any event, an interesting and rare one, whether it be a case of double congenital ovarian hernia, with absence of uterus, or whether it proves to be that equally rare malformation, masculine pseudohermaphroditism with feminine external genitals.

ECHINOCOCCI IN THE FEMALE BLADDER; CYSTITIS; EXCESSIVE DILATATION OF URETHRA; CURE.

BY

STUART ELDRIDGE, M.D.,

Late Lecturer on Anatomy, Medical Department, University of Georgetown, Washington, D. C. Surgeon of General Hospital of Yokohama, Japan.

THE presence of hydatids within the cavity of the urinary bladder is a phenomenon of such rare occurrence, even the industry and enthusiasm of a Cobbold having been unable to trace the history of more than five cases (see Parasites, a Treatise on the Entozoa of Man and Animals, London, 1879), that it seems worth while to record the following instance of the kind. The case has an additional value as showing the toleration of the female urethra for the roughest surgical procedures.

August 17th, Ohatsee, Japanese female, aged 20, complained that she had for two months and a half been suffering from painful and difficult urination, with the occasional passage of fleshy masses per urethram. A specimen of urine exhibited gave evidence of severe cystitis, while digital examination showed that the bladder was occupied by something conveying an indistinct sense of fluctuation and of singular softness; the other pelvic organs being in normal condition. The passage of a catheter brought away a few drops of muddy urine containing a little blood. The following day, as I was on the point of leaving town, she brought me a mass of hydatids, sufficient to fill a small tumbler, together with a fleshy body of the size of a plover's egg, which appeared to have sustained the relation of a pedicle to the accompanying vesicles.

Expecting to be absent but for a few days, and feeling that surgical interference was demanded, I gave her a preparation of buchu and hyoscyamus as a placebo, at the same time notifying her that some sort of operation would eventually be required. August 30th I returned and found that during my absence the "grape skins," as she not inaptly termed them, had been passing at intervals, although the medicine had somewhat relieved her pain. Operation was appointed for September 3d. September 2d she passed a second large mass of hydatids which I did not see, nor, indeed, hear of till after the performance of the operation, September 3d, Dr. A. C. Rhoades, U. S. N., assisting. Ether was administered and, with some difficulty, she being a very small woman, I dilated the urethra sufficiently to admit my forefinger; I was surprised and not a little disappointed that, although able to touch every portion of the vesical surface, I could detect nothing whatever of the nature of a tumor or abnormal outgrowth. There was, however, a well marked and peculiar thickening of the posterior and inferior walls of the bladder, the part feeling like a layer of firm jelly, though not at all friable, presenting little irregularity of surface, and merging imperceptibly into the solid and apparently healthy membrane lining the rest of the cavity. Not satisfied with digital examination alone, I carefully explored the bladder with spoon-bladed forceps and the dull wire curette, but with negative results. The dilatation of the urethra having been, as I before stated, excessive, it was somewhat fissured upon the upper wall, in the direction of its length, not merely at the meatus, but under the pubic arch as well. There was hemorrhage to four or five ounces, a portion of the blood finding its way into the bladder. In washing out the viscus with a Davidson's syringe, a single empty vesicle came away, together with a small amount of clots. Instructions were given that the bladder should be washed out daily for three days with a 1½ per cent solution of carbolic acid, using a double current catheter. On the second day, another empty vesicle was washed out. Great relief was given by the operation from the day of its performance, and, on the fourth day, she passed urine for the first time since the beginning of her illness without pain or straining; the urine, however, still continuing mucous and muddy, the patient was put upon benzoic acid. Under this treatment the condition of the bladder steadily improved until September 10th, when there was a sudden and sharp relapse of cystitis, apparently due to careless exposure of the abdomen during a chilly night. Vaginal examination at this time showed that the abnormal thickness of the vesical wall, above described, had almost disappeared. The carbolic injection was again used for three days, at the end of which time, the urine being normal, the patient was discharged with instructions to continue the benzoic acid, in diminished doses, for at least ten days longer.

Although, as I have before remarked, the urethra in this case was stretched to the utmost limit of safety, and I in consequence anticipated incontinence, perhaps to an inconvenient degree, the canal did its duty throughout. Even while washing out the bladder on the occasion of the operation, it was needful, after injecting, to open the urethra in some manner, as not one drop escaped either by the side of the injecting pipe or after its removal.

Reviewing the case, it appears evident that the whole mass of hydatids had broken down; the last, with the exception of the two single vesicles mentioned as escaping at the time of the operation and a day or two later, having been voided the day before the operations. Surgical interference, unless as treatment for the accompanying cystitis, was therefore not indicated. I was misled, however, by the spongy and thickened condition of the vesical wall, into believing that a considerable mass of hydatids remained. I believe this thickening to have been due to hypertrophy and excessive edema of that portion of the mucous membrane upon which the parasites had been attached.

Having had some experience of the value of dilatation of the female urethra for the cure of cystitis of the more usual character, I have no doubt that, in the present case, the operation, though not necessary for the removal of the hydatids, much accelerated the cure of the cystitis. I confess that on previous occasions, when dilating the female urethra, I have always been haunted by a fear of causing incontinence, though it has never occurred. The case now related, in which dilatation was carried to a point just short of total longitudinal rupture of the canal, and yet not even an immediate failure of function resulted, affords a valuable lesson and will hereafter relieve me from any fear of the kind, when the parts are normal in structure and tone.[1]

A CASE OF CALCIFIED FIBROID OF THE UTERUS WITH REMARKS.

BY

JOHN N. UPSHUR, M.D.,

Richmond, Va.

IN the October number of the AMERICAN JOURNAL OF OBSTETRICS, for 1879, Dr. J. T. Everett reports the successful removal of a tumor of this kind, with a plate of the specimen removed, and makes the statement that a review of medical literature since the days of Hippocrates, shows only fifty-one cases, and only thirty-three of these are well authenticated.

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[1] [A case of vesical hydatids in a female was reported by Dr. J. A. McKinnon, of Selma, Ala., in the Am. Med. Weekly in 1874 or 1875. The injection of two drachms of liq. sodæ chlorinatæ into the bladder produced violent contractions of the organ and the expulsion within one hour of about a pint of hydatids. The patient has remained well.—ED.]

It is my purpose to add another to this list, though it is not my good fortune to report a successful removal of the tumor.

I first visited S. A. J., colored, æt. 34 years, in November, 1869. Her general health was good, she had never borne children. Examination of the abdomen and per vaginam revealed a fibroid tumor, located in the fundus of the uterus, I believed of the subserous variety, and about the size of a large orange, very firm, smooth, and elastic in feeling. She suffered no inconvenience from it, except the weight and occasional metrorrhagia, nor did she have any constant treatment for its removal, two years elapsing once without attention of any kind, and up to a year before death she was constantly employed as a cook. During this time, the only appreciable change in the tumor was its slow but steady increase in size. For the past year she has been almost constantly confined to the bed. Hemorrhage more or less constant, and not easily controlled, nothing being of any benefit, except large doses (teaspoonful) fluid extract ergot, kept up for some time. Diarrhea was more or less constant and very exhaustive, the wonder of all who saw her being, how it was possible for life to be prolonged as it was. For several months past, in the absence of hemorrhage, there was a profuse, purulent discharge from the womb. She died August 25th, 1880. Autopsy, fifteen and one-half hours after death. Emaciation extreme; only the abdominal and pelvic viscera were examined. Some chronic peritonitis had existed. The uterus measured about twelve inches from os uteri to fundus, the cecum was so closely adherent to the womb that a portion of it was removed with it. Ovaries, Fallopian tubes, ligaments could not be identified. The os uteri was very small and contracted. On the left anterior surface of the cervix was a subserous fibroid, the size of a hen's egg, and another of the same size, posteriorly; both of these were very hard, but entirely fibrous in character. The cavity of the womb contained on its right lateral aspect a submucous fibroid with sessile base, entirely fibrous; the uterine mucous membrane was extensively ulcerated, and looked as if it had taken on carcinomatous disease, thus accounting for the purulent discharge before death. The upper two-thirds of the womb was occupied by a tumor the size of a cocoanut, and as hard as a granite rock, very heavy; it was found impossible to cut into it farther than the surface, revealing its calcified character.

For more than a year before death the tumor had possessed an unusually hard nodular feeling to the hand, and I feel sure that the calcification had been going on for a long time and was very slow in its progress. I much regret that force of circumstances rendered it inexpedient to preserve this specimen, that it might have been examined chemically and microscopically.

Though at present I do not possess statistics on which to base the assertion, my observation leads me to believe that fibroid tumors are much more common in the negro race;[1] cheloid tumors on the ear and other portions of the body, and which are fibrous in character, are much more common with them than the white race.

If the above be true, and I believe it is, can there be anything in the race which predisposes to this variety of disease, or in the habits or conditions of life? So far as the sexual passions are concerned, they approach much nearer the brute creation, and have greater moral obtuseness as to a promiscuous indulgence of the same than the white race, who possess a much higher degree of cultivation and refinement. Certainly it is the experience of us all in the South, that the negroes require different management when sick, and have not the resistant force to disease or the recuperative energy which the white race possesses.

Dr. Goodell bears testimony to the greater frequency of fibroid tumor in the colored race, and speaks of it as a curious fact that it is to "be found in a majority of middle-aged colored women, but—what is rare in whites—often enough in black and mulatto girls barely over twenty years of age." (Lessons in Gynecology, page 230.) He also says that this calcification is analogous to the cretaceous transformation in pulmonary tubercle (Ibid., page 242). This being the case, would in a measure explain why you would expect to find an effort at cure of this character in the negro, because of the low organism of a fibroid, when it would be less likely to be the ultimate result of tubercular deposit in the lungs, a more highly vascular organ.

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[1] I have endeavored to procure some statistics, but have only been able to obtain the opinion of some of the most prominent practitioners of this city. Prof. Hunter McGuire, Dr. George Ross, and several others concur in opinion that fibroid tumor of the womb is much *more common* in the *negro woman*, as the result of over fifteen years' experience in this city. Dr. Robert Battey, in a letter to me on the subject, says, "I rarely examine a negro woman of 35 years and upwards that I do no find a fibroid of more or less size. *Large fibroids* are common with them in middle life. Another fact of my personal observation, I find amongst the white women of the South, three cases, *at least*, of large uterine fibroids, to where I see one of ovarian tumor. I think I can say that uterine fibroids are much more common amongst whites in the South than they are in the North. I *know* that they are very much (10 to 1) more common amongst the black race. The last census reports show that the ratio of mortality from diseases of the generative organs is decidedly higher in the black female than in the white, but uterine tumors are not specified." (Dr. J. S. Billings, recent letter.)

I would in conclusion call attention, as being worthy of notice, to the fact of *subserous* fibroid, *sub-mucous* fibroid, and *intramural fibroid* which was *calcified*, existing in the same uterus.

I am well aware how crude and imperfect are the above report and remarks, but it has been a labor stimulated by a sincere desire to add my mite to the literature of a subject which as yet is involved in a great deal of uncertainty, both as to its pathology and treatment.

615 E. FRANKLIN ST.

CORRESPONDENCE.

WHO IS THE MOST SUCCESSFUL CESAREAN OPERATOR?

BY

ROBERT P. HARRIS, M.D.,

Philadelphia, Pa.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS.

DR. LUDWIG WINCKEL, the Cesarean operator, has frequently been mentioned, particularly by English obstetrical writers, as the most successful gastro-hysterotomist in the world. It has also been thought by many that his operations had been more numerous than those of any other surgical obstetrician in Europe, which does not prove to have been correct. Dr. Winckel formerly lived at Gummersbach, a little town near Cologne, in a region where osteo-malacic deformity of the pelvis was prevalent; and for this reason he was called upon to operate in labor a number of times. In number of operations he was surpassed by several Europeans, particularly in Italy; but we are not aware that any one ever saved as many women from the same number of operations. He is generally reported to have operated eighteen or twenty times, and to have saved the same woman four times in succession; but let him speak for himself, and we shall get the exact truth. The doctor now resides at Mülheim, on the Rhine, a fact which I learned through the kindness of Prof. Müller, of Berne. Being anxious to ascertain what Dr. Winckel had actually done, I wrote to him last summer, and in September received a reply, from which I obtain the following facts: He says: "I have performed 16 Cesarean operations (Kaiserschnitte), saving 8 mothers and 9 children." In this he is slightly in error, as he says "one woman ruptured her uterus in two succeeding labors, and I performed laparotomy, with success, the children being dead." This reduces the true Cesarean cases to 14, by which he saved 6 women and 9 children, or $42\frac{6}{7}$ per cent of mothers saved, and $64\frac{2}{7}$ of children, which is more of the former than all the operators of Paris and Vienna saved in a century up to 1876, when the Porro modification was introduced at Pavia.

In this country, the success of Winckel does not appear so remarkable, as Dr. Prevost, of Louisiana, saved 3 cases out of 4, with all the children, and the operators of his State, 15 out of 20 cases: also in Ohio, 7 out of 10. In the whole of the United States, West Indies, and Mexico, 57 cases out of 128, or $44\frac{1}{2}$ per cent, in which enumeration are the records of 55 operations which were never published, and from which 40 women perished.

By comparison with European operators, Dr. Winckel makes a much better showing. Dr. Girolamo Previtali, of Bergamo, Italy, writes me that he lost 17 out of 19 cases. Dr. Morisani informs me that they had saved but 2 out of 27 in Naples, and Dr. Belluzzi that his was the twelfth operation in Bologna, and first to succeed. In several of the larger Italian cities, the cures number but one in nine to twelve cases. Dr. Robert Greenhalgh, of London, has operated 8 times and saved but 1 woman; and Drs. Hicks and Gallabin, each 3 times, without saving a single case.

ROBERT P. HARRIS, M.D.

329 S. 12TH ST., PHILADELPHIA, NOV. 18th, 1880.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF NEW YORK.

Stated Meeting, April 6th, 1880.

SARCOMA OF THE KIDNEY IN A CHILD.

Dr. Jacobi presented a specimen, accompanied by the following history: Oscar J., born July 27th, 1876; was brought to him on the 15th of March, 1879, when he was two years and eight months old. 'The father reported that his own mother had carcinoma, that he had lost seven brothers and sisters, one with inflammation of the bowels, but none with cancer. This child had summer complaint more or less for several months in his second year. In March, 1878, he was taken with convulsions and coma, and it was noticed that no urine was discharged. On the following day, he passed a good deal of blood, some of it coagulated, and a large quantity of urine. Six weeks subsequently, he passed bloody urine again, but without any of the symptoms previously enumerated; at the same time he seemed quite well. In May, 1878, his abdomen began to swell, and the left side of his abdominal cavity was filled by some hard substance. When the boy first came under Dr. Jacobi's observation, the hardness was not equal over the entire surface of the mass. The larger portion of the tumor was hard, but in places there was a sensation of fluctuation. There was a good deal of tympanites to the right of the vertebral column and only a limited amount to the left. The spleen and liver were normal. The child urinated frequently, and sometimes involuntarily. His appetite was good. The epiphyses of a number of his bones were rachitic. He still perspired on his head, particularly in the occipital region. Emaciation was not marked. On the 6th of June, it was noticed that the tumor was increased in size considerably. In the mean time the patient had taken cod-liver oil and iodine, which did not interfere with digestion. He occasionally vomited, particularly in the morning. There was a trace of albumen in his urine.

On October 2d, 1879, Dr. Jacobi felt that he should be quite sure as to whether or not the tumor contained fluid, and therefore made a number of punctures at points where a cyst-like feel was present, but no fluid other than a small quantity of blood was obtained. At that time the circumference of the body at the ensiform cartilage was 25 inches; the distance from the manubrium to the umbilicus, 25 inches; the circumference at the umbilicus, 23½ inches, and the distance between the anterior superior spinous processes of the ilii, 7½ inches. On Nov. 1st, the tumor had increased in size to such an extent that it nearly filled the abdominal cavity, extending over to within one inch of the right anterior superior spinous process. On Dec. 12th, the general appearance of the child was less good than formerly. The tumor had evidently increased very much in size, and he suffered a great deal of abdominal pain, particularly when in the horizontal posture. The urine contained a small percentage of albumen and a larger quantity of water. The bowels were still quite regular. Now and then, however, he had retention of urine, with considerable pain. It was occasionally necessary to introduce the catheter, and, on some occasions, when the doctor was called on to use the instrument, the child refused to have it used, and subsequently passed a large quantity of urine without blood or foreign material, occasionally with small discolored coagulum, and was relieved. Without special variation in the symptoms, the child lived until the 8th of March, after having a great deal of pain and sleepless nights for weeks, and at last great emaciation. At the beginning, the diagnosis was sarcoma of the left kidney. The tumor had existed for some time before Dr. Jacobi saw it, and he concluded that, if it was carcinomatous, the child's general condition would not have been so good as it was at the time he made his first examination. As a matter of course, the diagnosis rested between carcinoma and sarcoma. Particularly was that clear after he had made the punctures for the purpose of ascertaining whether or not cysts existed. When he found that there was no liquid present, he concluded that he had to deal with sarcoma. It was well known that the peculiar deceiving sensation of fluctuation was frequently found in quite solid sarcomatous tumors. Undoubtedly carcinoma and sarcoma, at that early age, must be regarded as congenital, as, when the tumor finally becomes perceptible, it doubtless has already existed for some time. Not infrequently tumors are found as early as the first year, and perhaps existed in the case reported, but did not give rise to symptoms that attracted attention.

The tumor presented was about the size of a man's head. The right kidney was quite normal. The tumor consisted of a solid sarcomatous mass. There was no cyst whatever, but there was a peculiar condition, which consisted in the presence of apparently distinct masses in the general mass—looking somewhat like a polypus in the uterine cavity—and surrounded by a thick elastic membrane. Some of these masses were loose in their cavities, and it was thought that the loosening was due to extravasation of blood into the connective and partially elastic tissue by which they were surrounded. A number of such nests were found, and also a number of extravasations. No normal tissue could be found in the mass. The specimen looked quite fresh, and it had been preserved in Wickersheimer's fluid, made as follows:

Boiling water, 1,000; alum, 100; chloride of sodium, 25; nitrate of potash, 12; carbonate of potash, 60; arsenious acid, 10. Mix and filter. To 10 parts of the filtered fluid add 4 parts of glycerine and 1 part of methyl alcohol.

With reference to occurrence of sarcoma of the kidney, one writer has stated that there were only nine authenticated cases on record, but Dr. Jacobi thought that must be incorrect, as he had seen five or six within twenty-five years. The specimen presented was the largest he had ever seen.

STENOSIS OF THE PULMONARY ARTERY IN AN INFANT.

Dr. B. F. Dawson presented a heart that illustrated complete stenosis of the pulmonary artery, and almost complete obliteration of the right ventricle. The aorta was normal, and so was the pulmonary artery, except at the point at which it should open into the heart. It was removed from a child which was born at full term and lived twenty-eight hours. It was cyanotic when born and was supposed to be suffering from atelectasis.

Dr. Jacobi remarked that two views are entertained with reference to the etiology of such malformations. 1st, That they are the result of arrest of development, or insufficiency of building material. 2d, That they are the result of inflammatory processes.

It was Rokitansky, who, as late as 1875, wrote an extensive work on the defects in the septum of the ventricles, and insisted that, in the majority of cases, such malformations are due to arrest of development, or insufficiency in the amount of building material, for the arterial trunk that is the common source of the aorta and pulmonary artery. In these cases, however, he had forgotten, as Dr. Jacobi thought, that now and then it is safe to conclude there are also some other defects; and that in the numerous cases in which defect in the septum of the ventricle is found, sometimes complete, there are those in which there is simply contraction or total obstruction of the conus arteriosus or pulmonary artery itself; that is, the pulmonary artery between the heart and the ductus arteriosus.

In a number of cases, the malformation undoubtedly had an inflammatory origin. The endocarditis might be general or local, but in the large majority of cases it was local. Now and then traces of inflammation are found in other parts of the heart, and the earliest period at which it shows itself is at about the end of the third month —the septum of the ventricles being formed at the end of the second month, or in the beginning of the third. At that period a number of cases of endocarditis had been observed, the larger number being met with at about the tenth week of utero-gestation. When such inflammation occurs, new tissue is formed, and thickening is the result; sometimes of the endocardium, of the entire right ventricle, sometimes of the cornus arteriosus only, and the degree of the inflammation depends upon whether we have to deal with total obstruction or simply with partial stenosis. Upon the degree of inflammation also depends whether the pulmonary artery is fully developed; whether it is large or whether it is small; or whether its walls are of the normal thickness or are as thin as are the walls of the smallest veins—especially whether or not they are entirely deprived of muscular tissue. Now and then, in such cases, a thickened ring is found around the orifice of the pulmonary artery. In a number of cases, there is insufficiency of the tricuspid valve. When there is an insufficient tricuspid valve, or when it is pressing but loosely upon the opening, circulation will go on, although more or less disturbed; but when there is total obstruction to the current, as in Dr. Dawson's specimen, the blood enters a ventricle that has no other function than to drive it out at the same opening at which it came in. It is then that the heart muscle, if the cavity is very small, becomes very thick; that is, the ventricle, although very small, will have very thick walls. The endocardium is also thick; very probably not as the result of the original inflammation, because the thickening is general, but in consequence of the constant necessity on the part of the ventricle to get rid of the blood through the same opening at which it rushes into the heart. Imagine obstruction taking place at an early period when the ventricle is small, the result would be that on one side the ventricle would be smaller than this, and it is in such cases that we have complete obliteration of the ventricle, in case the blood not participating in the circulation coagulates. These are the cases in which a single ventricle is found with two auricles. When there is no right ventricle, or it is very small, or there is complete obliteration of the pulmonary artery, the child does not live at all, and it dies exactly as did the child from which Dr. Dawson removed his specimen.

Imagine now that just such an obstruction has taken place as the result of insufficient amount of building material, then you will find an open septum of the ventricles; and in those cases you will not have cyanosis, but only a feeble circulation. And the individual may live five, ten, or twenty years; and there is one case on record in which the person lived to reach forty years of age.

There are a number of cases reported in which the absence of the ventricular septum was not suspected. Probably the number now observed has reached thirty or more. In such cases, however, where they do not die from complete obstruction, the infants or young children will occasionally show signs of cyanosis, have a flabby look, be somnolent, have dropsy, and there may be certain brain symptoms, such as twitchings, convulsions, and paralysis, and yet not infrequently such babies die without definite diagnosis.

Stated Meeting, March 16th, 1880.

The President, Dr. Wm. T. Lusk, *in the Chair.*

Dr. M. D. Mann reported a case of

BATTEY'S OPERATION FOR UTERINE FIBROIDS.[1]

The President remarked that no case precisely like Dr. Mann's had been reported; for, in none in which the ovaries had been removed for fibroid of the uterus was there a polypus in the uterine cavity.

Dr. Mundé thought that should he be called upon for advice in another case of this character, he should advise removal of the uterus. Certainly in a case in which there is such great difficulty in removing the ovaries, the shock is as great as it would be with removal of the uterus. He palpated the abdomen thoroughly before the operation in this case, hoping to be able to find something that would indicate the probable situation of the ovaries; but, notwithstanding the favorable condition of the abdominal walls for the manipulation, he was unable to feel either ovary, thus indicating that their removal would probably be difficult.

Dr. Mann believed that removal of the uterus in his case was impracticable, because a pedicle could not have been made of the cervix, which was completely occupied by the fibrous mass. He thought that the patient would have died upon the table had an attempt been made to remove the uterus.

Dr. Skene remarked that the same thought occurred to him as had been expressed by Dr. Mundé; yet while Dr. Mann was describing the case he concluded it would have been impossible to get a pedicle, and he thought that, in such cases, the point which would decide which of the two should be removed, the uterus with the entire diseased mass or the ovaries, was the practicability of obtaining a pedicle.

PROBES, DILATORS, AND APPLICATORS MADE OF THE ROOT OF THE COMMON SLIPPERY ELM.

Dr. Skene remarked that, at the suggestion of Dr. Tuckerman, of Iowa, he had had occasion to use the root of the common slippery elm for probes and dilators in gynecological cases, and that he had been very much pleased with the instruments. The root has a uniform thickness, and by taking different sizes, probes of different sizes can be obtained; and one special advantage was that instruments of any size could be secured with the greatest facility. The root can be cut at any length desired, the end rounded, and is used with the bark on. When used, the piece is dipped in warm water for a few minutes, when it will be found to be sufficiently flexible and so mucilaginous that it can be passed with the greatest facility into either the cervix or the urethra. He had been able to dilate the urethra, by the use of these dilators, with more facility and less damage to the mucous membrane than with any dilator he had ever employed. The difficulty with all other probes and dilators was that, when passed through a small canal especially, the lubricating substance was removed, so that they did not maintain a smooth surface. The root could be used as an applicator by first dipping it in warm water, and then into whatever substance was to be applied, when, for all practical purposes, a sufficient quantity would adhere to the surface. Their flexibility is about the same as that of an ordinary English gum-elastic bougie.

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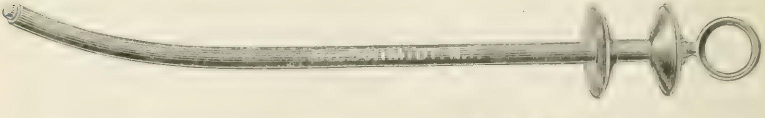
[1] See Orig. Comm., October, 1880.

Dr. Polk referred to a case in which the patient had, at the suggestion of Dr. Hunt, of New Orleans, used during the last fifteen years the root of the slippery elm, to dilate his urethral strictures. In that case only the wood was used; and its flexibility was well shown by the fact the man usually passed them well into the bladder.

Dr. Mundé exhibited a

TUBE FOR INTRODUCING MEDICATED TENTS INTO THE UTERUS.



It operates upon the same principle as does Dr. Barker's ointment syringe or applicator, and the only essential modification consists in the attachment of two discs, so that it could be used with one hand.

With reference to the bougies, Dr. Mundé had found that when they were exposed to the air they became hard, so that they could be readily introduced, but that then they did not dissolve. The instrument was devised to facilitate the introduction of the bougies while in their pliable condition, thus avoiding the necessity of exposing them to the air for the sake of stiffening them, which at the same time rendered them less likely to be melted in the uterine cavity. He had seen the undissolved bougie expelled in several cases, but only those which had been exposed to the air. He had found the bougies to be of grea service, and had not known of unpleasant symptoms following their introduction into the uterus.

Dr. Hunter remarked that he had used a small-sized hard-rubber suppository tube with advantage for the same purpose.

Dr. Janvrin remarked that he had used Dr. Mundé's instrument with a great deal of satisfaction.

Dr. Chamberlain remarked that practically he had not seen anything of the bougies after they had been introduced.

EPITHELIOMA OF THE CAVITY OF THE BODY OF THE UTERUS.

Dr. A. J. C. Skene reported a case as follows: A multiparous lady, æt. 38, had suffered from severe neuralgia and had been under treatment for two years. Six months ago she first came under his observation, when the pain was severe; and, upon examination, the uterus was found enlarged and its mucous membrane roughened. He removed, at her first visit, what he supposed to be fungoid growths, and made a diagnosis accordingly. The relief afforded was moderate, but the symptoms soon returned, and he repeated the operation, removing an unusual quantity of soft spongy material, and again she was relieved. Her symptoms again returned, and then she was so weak and her suffering was so severe that she was unable to come to his office. When he visited the patient, he found her uterus larger than it had been, and, after dilating the cervix, he used a large blunt scoop, preferring that to a curette, and removed a very large quantity of what was subsequently found, upon microscopical examination, to be mostly epithelial in character. If the report of the microscopist was correct—and he was a man of recognized ability—it was the third case of the kind he had seen. One is mentioned in Dr. Thomas' work on "Diseases of Women," as epithelioma of the cavity of the body of the uterus. A second case he had seen since, with diagnosis confirmed by Dr. Sims. If the diagnosis in these cases was correct, there was one point relating to differential diagnosis, which he had noticed—namely, extremely severe pain occurring early in the disease. The patient whose case he was relating had no cellulitis, the uterus was perfectly movable, as were all the pelvic organs and tissues, and yet she suffered from extreme pain, much more marked than that usually attending malignant disease of the uterus except in its last stages. He was inclined to the opinion that severe pain occurring early has some value as a diagnostic symptom of malignant disease of the cavity of the body of the uterus, independent of the variety of cancer which involves the deeper structures of the organ. He was aware that pain is not a prominent symptom early in many cases of malignant disease. In many of the text-books it is laid down that extreme pelvic pain, such as requires the free use of anodynes to afford relief, occurs only after the growth presses upon pelvic tissues. There was nothing which would account for the extreme pain, if the disease is so limited to the cervix. He was sure he had seen as large mass of malignant growth in the cervix, yet not attended by so severe pains. There was no offensive odor in the case, although there was in the other two cases.

Dr. Mann referred to one case which tended to confirm Dr. Skene's observation. It was one of cylindrical-celled cancer affecting the uterine tissues just around and above the internal os. In that case, in the early stage, the pain was extreme. There was neither peritonitis nor cellulitis. The pain had been persistent.

Dr. Janvrin referred to a case seen in the Woman's Hospital, in which, soon after admission, it was noticed that the patient had quite an amount of discharge that had the usual offensive cancerous odor. He curetted the uterus, and submitted the scrapings to Dr. Welch, the pathologist to the hospital, who reported that it was a case of epithelioma of the fundus of the uterus. She was discharged from the hospital on account of the offensive discharge, but had since been under his care, and he had curetted the uterus four times in all, the last operation being about one month ago. At the last two operations he removed very large quantities of spongy fungoid material. The patient had the usual appearance of one suffering from cancer of the uterus involving the entire substance of the organ. It probably began as an epithelioma of the mucous membrane, but there had been no pain whatever. It was the only case which he had seen in which pain had not been present.

Dr. Mann referred to a case of cancer of the fundus of the uterus in which there was no pain.

The President asked, "How far is the microscope to be depended on as a means of diagnosis when only scrapings can be obtained for examination?"

He then referred to a case in which material removed from the cavity of a uterus by scraping was submitted to microscopical examination, and two competent observers reported, independently, that the material was from a uterine cancer. That was about ten years ago, and the patient yet lived and was in the enjoyment of apparent health. If it was a case of cancer, it was one in which recovery had taken place.

Dr. Mann remarked that the reliability of the microscopical examination depended considerably upon the size of the pieces removed by curetting or scraping. If a piece having sufficient size, so that it can be subjected to proper preparation and section, diagnosis could be made with a certain degree of accuracy.

Dr. C. S. Ward referred to a case of malignant disease of the body of the uterus that had been under observation fifteen months. One of the first symptoms which attracted attention was a bloody vaginal discharge. The woman was fifty-two years old, and menstruation had ceased seven years previously. That with pain was an almost constant accompaniment up to the time of death, that occurred about two weeks ago. There was no odor; that is, such as has been regarded somewhat characteristic of cancer.

Dr. Mann remarked that odor was absent in his case.

Dr. Skene remarked that he did not wish to be understood as including cancer of the body of the uterus generally, in speaking of these cases under observation, for he had seen many cases of malignant disease of the body of the uterus, but in only the three mentioned did the disease seem to be limited to the mucous membrane.

POISONING BY CHROMIC ACID TO CERVIX UTERI.

Dr. Mundé reported a case as follows :

A patient had an epithelioma of the cervix in the ulcerative stage. There was a crater-shaped cavity. The curette was used thoroughly, and chloride of zinc applied with very good result. About ten days subsequently he saw the patient, removed the sloughs, found fresh budding granulations, again scraped the surface, and then painted it over with pure chromic acid. A small plug of cotton saturated with chromic acid was placed in the cervix, a vaginal tampon applied and the patient removed from the table to the bed. Within ten minutes she complained of a peculiar burning sensation in her throat, felt suffocated, and had a choking sensation. He recognized that her symptoms were due probably to absorption of the chromic acid and thought that they would soon disappear. Within one hour afterwards she was taken with vomiting, diarrhea, and went into an apparent fainting fit, and when, two hours subsequently to that, he again saw her she was in a state of thorough collapse. From this she soon rallied. He reported the case simply as an instance of absorption of pure chromic acid. He had frequently used it in the same manner, but had not seen such rapid absorption or specially unpleasant symptoms.

Stated Meeting, May 4th, 1880.

The President, Dr. Wm. T. Lusk, *in the Chair.*

Dr. T. A. Emmet presented a specimen of

STONE REMOVED FROM THE BLADDER OF A FEMALE.

The patient was forty-four years of age, and the operation was performed in December last. The case had not been reported until her after-condition was known. She had been treated for irritation of the bladder for four years, but stone had not been suspected, although it could be felt above the pubis. She was emaciated and had the opium habit. There was nothing specially interesting in the case except as showing the advantage of removing stone through the base of the bladder. An opening into the base of the bladder was made at some distance from its neck and the uterus; two fingers were passed in, and, with a pair of scissors, such as are used in dividing the cervix backwards, the stone was crushed. The nozzle of a Davidson's syringe was passed into the bladder, and the fragments of stone washed out.

The stone was an encysted one, and the mucous membrane in that portion of the bladder where the calculus lay was brought out. The patient became nearly exhausted towards the close of the operation and it was necessary to administer brandy. The interior of the bladder was now smeared with vaseline which was thought to have had a good effect in protecting the parts and preventing phosphatic deposits which might have formed again upon the raw surface. The patient was seen by Dr. Emmet in April last. She was then restored to health and weighed twenty pounds more than at the time of the operation. The opening made into the base of the bladder was sufficient to admit three fingers, but it had now closed, so that only one finger could be passed. It was left open in order to secure drainage and rest to the bladder, and the conditions were good to close it at any time.

Dr. Mann inquired if there was any shrinking of the bladder, and what was its capacity.

Dr. Emmet could not say how much the bladder would hold, but stated that its walls were thickened, and in consequence it was probably reduced one-half in size.

The President inquired if the stone was hollow, and how the patient passed her water.

Dr. Emmet stated that there was a nucleus which consisted of a small hard stone, and, that the patient's water dribbled from her all the time. He thought the case showed how careless many men are in the practice of medicine, since several physicians had had charge of the case and not one of them had passed anything into the bladder; all having treated her on general principles for vesical irritation.

Dr. Garrigues remarked that Dr. Emmet had been kind enough to let him examine the patient, and that he observed, when the shell and nucleus of the stone were removed, the interior of the bladder felt like a stony cavity.

The President stated that he had seen three cases of incurable incontinence as the result of breaking and removing stone through the urethra.

Dr. Emmet remarked that he had a case in the hospital where the bladder was separated back to the ureters as a result of this procedure. He could not conceive why the operation was ever attempted through the urethra, because laceration would take place sometimes, even when the greatest care had been taken, and he knew of no harm from removing the stone through the base of the bladder, except perhaps, that the physician might not be able to close the opening: if this were the case it could be closed by one who was accustomed to such operations. He considered the accident a very frequent one in consequence of the great temptation to draw the stone out through the urethra when it was not sufficiently dilated.

Dr. Skene inquired of the President if, in the cases he referred to, the stones were crushed and removed in fragments after the manner described by Dr. Bigelow, of Boston.

The President could not say, but thought his cases were operated upon before the plan of crushing and removing stones through the urethra was practised as it is now.

Dr. Skene said it occurred to him that, if the operation was performed in the same way upon the female as upon the male, the chances of a good result would be equal in both instances.

PERITONITIS WITHOUT CHARACTERISTIC SYMPTOMS.

Dr. Emmet read the history of a fatal case of peritonitis which had occurred in his private practice and which developed none of the usual symptoms of peritonitis. He had seen several of these cases. One of his first of this sort occurred in a patient in whom he had divided the cervix. There was evident cellulitis, but no great concern was felt until a week after the operation, when the patient developed intense pain in her right shoulder, began to cough and had hiccoughs. The conjunctivæ were yellow, but there was no pain upon pressure of the abdomen, or cause of alarm until within three or four hours of her death. A post-mortem examination was refused. Dr. Emmet gave it as his opinion that the case was one of cellulitis connected with the liver. Since that time he had seen several cases in his practice and in the practice of others, and in some instances there had been a disposition to blame the physician in charge when there was no indication of the character of the disease until within a short time before death.

Dr. Chamberlain inquired if there had been a post-mortem in the case which Dr. Emmet presented to the Society.

Dr. Emmet replied that there had been no post-mortem, for the reason that he did not think it was necessary. He thought there was no doubt that general peritonitis existed, but this was not evident until within three or four hours of her death.

Dr. Jacobi said that the elevation of the temperature was a very important symptom, but that he had lost confidence in it as one of the main symptoms of peritonitis long ago. He had seen a number of fatal cases of peritonitis ranging through almost every age with very little elevation of temperature almost up to the last minute of life. Two weeks previous, a baby was brought to his clinic with an imperforate rectum; the baby seemed to be in tolerably good condition. Dr. Jacobi tried to find the pouch in the upper portion of the pelvis, but was unsuccessful, although the baby strained while he had his finger in the lower rectum. The idea of operating was abandoned for the time, as the temperature was not elevated, the abdomen was not much swollen and the general symptoms were not urgent; the doctor wished to wait for that one symptom which he looks for, namely, bulging down from above. The next morning the baby was dead, having died twelve or fourteen hours after Dr. Jacobi first saw it. A post-mortem examination revealed, as the cause of death, peritonitis. There was moderate injection of the whole peritoneum, and there were present about two ounces or two and a half ounces of serum. The temperature had not been taken during the night, but when the patient was first seen the temperature was normal; still there was incipient peritonitis. He would have expected pain upon pressure and injection of the external veins, together with some elevation of temperature, all of which were absent. About sixteen or eighteen years ago, Dr. Jacobi saw a boy, fourteen years of age, who had been sick for some time. His temperature had not been taken, but the main symptoms of peritonitis were absent; the pulse was eighty or ninety. The boy sank and died, and upon post-mortem examination an immense quantity of pus was found in the peritoneal cavity. No diagnosis of peritonitis had been made, though it was expected. The speaker remembered a few more cases in which elevation of the temperature was certainly absent. He had seen cases of peritonitis running through their whole course in persons who were not of the so-called strumous habit, who were not fat and heavy, or of a generally poor reaction, where the temperature was not above 101 or 102° F. until within a few hours before death, at which time paralysis became imminent and the temperature went up. He would not rely upon this symptom when the diagnosis of peritonitis was to be made.

Dr. Emmet wished to state it as his opinion that, the more malignant the form of peritonitis, the more certain would every characteristic sign be absent, and that this was due to blood poisoning.

Dr. Jacobi remarked that he ought to have said that, although in real cases of peritonitis high temperature might be absent, yet it was more likely to be absent in cases where there was septic poisoning. It was not uncommon for sepsis to run a full course without an elevated temperature, or not above 101 or 102° F. He believed Dr. Emmet was fully justified in saying that, when the septic character of peritonitis was fully developed, then the febrile symptoms were very apt to be absent.

The President said that the history of Dr. Emmet's case was similar to what was met with in puerperal fever, and cited a case that had been in his wards at the hospital. It was in the class of cases under consideration that the pyemic form of peritonitis was found. The poison either spread through the veins or passed through the lymphatics. Whenever purely septic poison passed along the lymphatics, we had cases of this kind.

Dr. Polk remarked that one case of peritonitis had come under his personal observation and another under the observation of Dr. Metcalfe, which bore upon the facts related by Dr. Emmet, but they did not bear out the idea that blood poisoning was a necessary element in suppressing the symptoms of the disease. The first case was that of a lady who had been confined about three weeks previous and who had made, as far as could be judged, a complete recovery. Suddenly one night she went into a state of collapse; there was no fever, no pain. She had been down to tea the evening before and had said something about going out to drive the following week. She remained in this condition for three days and then died. At the autopsy it was found that there was a small abscess connected with the left ovary which had ruptured into the peritoneal cavity and had given rise to an extensive congestion of the peritoneum which had caused her death. Another case occurred in the same family and came under the observation of Dr. McBurney. It was in an elderly lady who complained of pain in the region of the liver, but had no fever and was otherwise fairly well. He continued to visit her, looking upon the case as one of indigestion. She afterward felt worse as shown by a tendency to occasional attacks of hiccough, and finally sank and died without any elevation of temperature. Autopsy revealed ulceration of the gall-bladder. As bearing upon the possibility of a virulent substance masking the symptoms of peritonitis, Dr. Polk related the history of a case which the President saw in consultation with him at the Hospital. The patient was in perfect health aside from having an abdominal enlargement. The needle used to puncture this was a new one. After the operation, the patient was carried back to the ward and during the same afternoon she developed some pain and her temperature rose to 103° F. On the following day her temperature was 105° F. Twenty-four hours afterwards, she developed facial erysipelas and had intense pain all over the abdomen. She died on the fifth day, her temperature having ranged from 102.5 to 105° F. The lymphangitis extended into the broad ligaments, and the lymphatics near the broad ligaments contained a slight amount of exudation. The remaining surface of the peritoneum was congested. This patient had all the symptoms of peritonitis, and yet there was clearly septicemia as the cause of both lymphangitis and erysipelas.

The President remarked that he was glad Dr. Polk had called attention to the rupture which had taken place in the case reported, for he had been thinking that such an accident might have occurred in the case reported by Dr. Emmet.

Dr. Emmet responded by saying that he did not think such was the case, and that there were no abscesses large enough to do any harm even if they had ruptured. There was no regular pelvic abscess.

Dr. Noeggerath gave a brief history of two cases of peritonitis illustrative of the fact that a very high temperature might exist in non-septic peritonitis, and still the patient be in good condition and suffer very little from it. In one of the cases cited, the temperature rose occasionally to 107–8° F., in the other it reached 110° F., showing that, when there was no septic poisoning, the highest temperature on record exerted no bad influence upon the patient. Dr. Noeggerath wished to call attention to a misnomer in common use. The affection alluded to under the name of cellulitis was not cellulitis, but pelvic peritonitis. Cellulitis was an inflammation of the cellular tissue in and around the uterus. All of these grave cases were peritonitis and not cellulitis. In England and in this country, acute as well as chronic peritonitis was spoken of under the name of cellulitis, and he thought it would be of importance to have this matter cleared up. It was of further importance, from a clinical stand-point, for the prognosis and treatment were different in the two affections.

The President thought that, in most of the cases which had been related during the evening, pelvic cellulitis had preceded pelvic peritonitis. The septic poison was conveyed from the neighborhood of the uterus to the peritoneal cavity by the lymphatics which traverse the cellular tissue.

Dr. Noeggerath remarked that in those cases where septic peritonitis had been produced artificially and its course followed, it had been demonstrated that the bacteria travelled through the lymph-vessels and in rare cases perforated the endothelium and then passed into the peritoneum. The most common way of propagation was through the lymphatics, and from thence into other organs. If the uterus and peritoneum were examined in a woman dead of septic peritonitis, the disease would usually be found to be restricted to the veins, arteries, and lymphatics; the lymphatic spaces proper (the borders of which were of cellular tissue) would be found very little involved.

Stated Meeting, May 18th, 1880.

The President, Dr. Wm. T. Lusk, *in the Chair.*

URETHRAL CARUNCLE.

Dr. Jenkins cited a case in which the patient, a young woman twenty-five years of age, complained of great pain. Upon examination he found an urethral caruncle which he removed. Finding that she still suffered pain, he explored the urethra further, and found a half-dozen more of these growths within the first two-thirds of an inch of the lower end of the urethra; they were of the size of a small pin's head. These were snipped off when it was possible with a pair of scissors, and when this failed, chemical agents were resorted to. But she still suffered intense pain. She was taken to Dr. Skene, who, after a careful examination, thought all of the foreign growths had been removed, and regarded the case as one of congestion of the mucous membrane lining the urethral canal, especially in its upper third. He recommended local treatment which was carefully carried out for a month, but with only temporary benefit. The patient was then taken to Dr. Emmet, and at his instigation was placed in the Woman's Hospital. Upon examination, Dr. Emmet thought the patient was cured without knowing it. He concluded, however, to open the urethra and found it apparently healthy, but upon a more careful examination, he detected several exceedingly small vascular excrescences, one of which he divided by an incision made parallel with the walls of the urethra. Snipping these off and sewing up the wound, the patient made a rapid recovery and was now entirely well. Dr. Jenkins said he had never seen a case where the growths were located so far up the canal. The last growth which was removed was within a quarter of an inch of the bladder. There was neither fissure nor vesical irritation.

EVERSION OF THE URETHRA.

The President made brief mention of a case of this sort which he had been invited to see by Dr. Janeway. Upon examination a bright-red tumor was seen projecting apparently from the urethral canal. The patient was etherized and the apparent tumor replaced. When last heard from, some four or five days after the operation, the mucous membrane was still in place.

Dr. Mundé related the history of a similar case which he had seen about a year previously at Mount Sinai Hospital. A mulberry growth appeared to project from the mouth of the urethra, and the patient complained of painful micturition. The tumor was thought to be an epithelioma. Closer examination revealed the existence of a dent in the projecting mass and at this point a probe was passed into the bladder. Thinking perhaps it was an eversion of the mucous membrane of the canal, replacement was attempted, but failed, and the tumor seemed to be firmly incarcerated. It was now proposed to remove it by means of the galvano-cautery wire, and with this end in view the patient was sent home; but when she was placed upon the table for operation a few days later, it was found that the tumor had disappeared, probably sloughed away.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, September 2d, 1880.

Dr. Robert P. Harris *in the Chair.*

Dr. Wm. Goodell reported

A CASE OF LAPAROTOMY FOR EXTRAUTERINE FETATION.

S. A. F., æt. 31, has been married for not quite five years. Her catamenia began when she was fourteen years old. They were regular, lasting three days, but were more or less painful. At the age of sixteen, she was kicked by a drunken man in the pubic region. The blow laid her up for some weeks, and she thinks that she has never fully recovered from its effects. In July, 1878, she had an attack of severe pain in the right iliac region, with excessive menstruation. For these, she called in Dr. J. S. Hunt, of Easton, to whom I am indebted for much information about her. "In August," he writes, "I saw her one day for an attack of cholera morbus, as I reluctantly decided to call it. She was in a state of extreme prostration, had vomiting, diarrhea, and cold extremities, and was bathed in a cold perspiration. I sent for brandy, and with the aid of mustard, etc., soon had reaction. She said afterwards that she had fallen down the cellar-stairs shortly before; and I have always thought there might have been a displacement or rupture, or some extraordinary circumstance to bring about the peculiar attack. The diarrhea was not excessive, and my impression was that there was a shock to the system from some unexplained cause."

Shortly after this, she discovered an abdominal enlargement, and then for the first time deemed herself pregnant. Her catamenia, which hitherto had been menorrhagic, now ceased for three months, and she fancied that she "felt life." Early in December, 1878, was the date fixed by her for her delivery, but, to her surprise, the catamenia at that time returned, and her breast became full of milk, yet labor did not set in. The fetal movement, however, as she alleges, kept up, and thinking that she had made a mistake in her calculation, she waited until March, 1879, at which time her catamenia were again lost, and then consulted Dr. Hunt, who had not seen her since August. All the signs of pregnancy had by this time disappeared, the womb was found empty, and crowded over to the left by a large tumor, occupying the right of the abdominal cavity. Other excellent physicians saw her, but they were undecided as to the nature of the tumor; the general impression being that it was a fibro-cystic tumor of the womb. She, however, still insisted upon it that she was pregnant, and to this belief she clung during the whole of 1879, although the tumor now lessened in size and her catamenia appeared regularly. At this time, she was able to attend to her household duties, and complained only of obscure pelvic pains, for which she got an occasional dose of morphia. Early in 1880, she gave up all ideas of pregnancy. At this time, she was well enough to do her washing out of doors, and thereby, in March, caught a pleurisy, which laid her up for some time. This was followed by an attack of "yellow jaundice," and her monthlies again ceased to appear. She now fell into the hands of Dr. J. B. Heller, who, finding the abdominal tumor, and seeing that she was beginning to fail, sent her to me.

Status præsens.—Great emaciation, cheeks sunken, eyes hollow, tongue coated, has no pain, is losing her appetite, and growing thin. An enlarged lymphatic gland lies in the neck, but no other glands are apparently involved. Her abdomen is marked with *lineæ albicantes,* and swollen to the size of a women at full term. Percussion all over this tumor elicited high tympanitic resonance, united, on palpation, with gaseous resilience. Upon deep and quick palpation with the tips of the fingers, a solid, movable body, of irregular outline, can be faintly felt receding from the fingers, and returning to them by a kind of ballottement. Within a span from the spinal column, the percussion-note became dull, and fluctuation can faintly be made out. When the woman is placed on her right side, the dulness and fluctuation shift to the right and most dependent part of the abdomen, and extend to one inch above the linea alba. Beyond this, to the line of the descending colon, tympany is found. When the body is turned over on the left side, these conditions are reversed. When she lies on her face, the dependent portion of the abdomen is dull, while resonance is elicited in the loins and up to the spinal column. Fluctuation over the area of dulness is now very marked. By a vaginal examination, the cervix is found high up on the left side, and drawn up out of the vagina. The vaginal portion of the cervix, or surgical neck of the womb, has disappeared; the os externum is small and flush with the roof of the vagina. The sound passes in to a distance of four inches, and not only can its tip be felt very plainly through the abdominal wall of the left groin, but its movements are visible. A slight prominence is here perceptible, which is plainly the womb. This organ is immovable, and it is made so, evidently, by a hard tumor, which can be felt through the right or free portion of the vaginal roof.

This examination threw so little light on the diagnosis, while the unusual site of the tympany, together with its very marked character, was so perplexing that I put my patient under ether, and again carefully went over the whole ground. But nothing new was elicited, and I concluded the case to be either one of extrauterine fetation, with a collection of gas in the cyst, or one of malignant disease of the right ovary or of some pelvic structure, combined with fluid in the abdominal cavity. I inclined to the latter opinion, because I could not reconcile decomposition of the contents of an extrauterine cyst with absence of grave constitutional symptoms, such as night sweats, high temperature, and other evidences of blood-poisoning. The enlarged gland in the neck, and the previous history of jaundice, also aided in leading me astray. My friend, Dr. J. C. Reeve, of Dayton, O., happening to be in the city, I stated my perplexity to him, and, without giving him my diagnosis, asked him to examine my patient. He kindly did so, and for the same reasons as my own, independently came to the same conclusion of malignancy.

In justice to the physicians who attended her, it should be stated that she was not only a very ignorant and superstitious woman, but also one of the out-door poor, who consulted them at long intervals, and very generally at their offices. In justice to Dr. Reeve and to myself, let me say that the patient was one of the most stupid women imaginable, and that her history, as just related, has been patched up from letters from her physicians, and from very contradictory statements taken down from her own lips.

In view of the doubtful diagnosis, I decided, on June 14th, to make an exploratory incision. This was done with every antiseptic precaution. A cyst, with numerous adhesions, was at once exposed. On tapping it, a volume of very offensive gas audibly escaped; then pus. The trocar becoming clogged, the opening into the cyst was enlarged, and several quarts of thick and fetid pus were turned out. A full-grown fetus next came into view, and was removed. It was much decomposed, the parietal bones being loose and naked. The umbilical cord had fallen off, and was floating in the pool of pus like a slough. Not the slightest vestige of a placenta could be made out; it had been wholly converted into putrilage. After emptying the cyst, and carefully cleansing it with a solution of carbolic acid, I began to sever the adhesions, in order to remove as much of the cyst as was possible. That this was a mistake I am now wholly satisfied; for, although I was thus enabled to cut away several large pieces of the cyst, one of them being equal in size to my hand, the resulting hemorrhage demanded the use of a number of ligatures. I also came so nigh perforating the colon as to strip up for a short distance its peritoneal coat. This decided me to relinquish all efforts in this direction. So the opening in the cyst was stitched to that of the abdominal wall by the same sutures which closed the latter, and a drainage-tube was put in. The left ovary lay *in situ,* the right one could not be found, and the cyst appeared to be made up from its expansion.

For five days the cyst was cleansed out twice daily with a two and a half per cent solution of carbolic acid, and the woman did very well indeed. But on the seventh day, she had a quarrel with her husband; shortly afterwards, great difficulty in respiration took place, she became cyanotic, and in a few hours died with all the symptoms of heart-clot. No autopsy could be obtained.

This makes the eighth case I have seen of extrauterine fetation, and it is the only one in which I had a chance of operating. The first one occurred in the practice of Dr. W. C. Perkins, who called me in, and afterwards reported the case before the Society.[1] The fetus, although at full term, could have been readily removed by a vaginal incision into Douglas' pouch, but no argument in favor of an operation had any weight with the woman and her husband. She died from septicemia three months after the fetal movements had ceased. The second was a patient of Dr. E. L. Duer's, who also related the case to you.[2] He asked me to see her, and we wished to operate, but the husband refused his consent unless we would positively insure the life of his wife. This, of course, we could not do. She died suddenly within a month after the fetus had perished. The third case was one to which I was called by Dr. F. P. Henry.[3] The patient's friends here also refused any operative interference; but, from the desperately low condition of the woman, it was a forlorn hope, and, therefore, not greatly urged. She also died one month after term. The fourth case, one which I saw with Dr. J. Graham, was moribund at the time of my visit, the woman dying six hours later. The history I related to you,[1] and I showed you the specimen of the womb, with both ovaries intact, and the left oviduct lost in an immense sac. This case was remarkable from the fact that, like one recently reported by Dr. Pallen,[2] the womb contained a quantity of what was supposed to be liquor amnii. Dr. Routh[3] also had a case in which the introduction of the sound was followed by a watery discharge.

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[1] AMERICAN JOURNAL OF OBSTETRICS, May, 1872, p. 155.

[2] *Ibid.*, April, 1879, p. 365.

[3] Transactions Pathological Society of Philadelphia, 1878, p. 95.

A fifth case was one which I saw with Dr. Bernardy. The whole history was obscure, but we both arrived at the conclusion of its being one of extrauterine fetation. I wished to make an exploratory incision, but the woman would not permit an operation, and she died from exhaustion. The physician who made the examination informed me that he found an abscess extending along the whole spine, and the complete skeleton of a fetus lying in fragments in the pus.

A sixth case was to me a most interesting one, because it taught me a bitter lesson. In 1879, the lady, who had been sterile for seven years, missed her monthlies, and thereafter began to have pelvic colics, and to lose blood per vaginam. This hemorrhage continued daily up to April 2d, when I first saw her, sometimes being a mere show, at other times a free flow. In January, 1880, after several days of acute suffering, she passed a membranous sac, "smooth on the outside, and rough and dark within." All along her two physicians had deemed her pregnant, but neither she nor her husband were willing to believe this until the appearance of this supposed miscarriage, which convinced them and confirmed their physicians. After this, she grew worse, with pelvic colics and hemorrhages. Her health failed rapidly, and she finally consulted me. I found milk in her breasts, the cervix soft and low down, and the canal patulous enough to admit the finger up to the os internum. The womb was pushed downward and forward by an elastic tumor lying in Douglas' pouch. The sound gave a measurement of 3.5 inches. Feeling assured, from my examination, that the womb did not contain an ovum, I put in three tents. These on the next day, April 3d, I removed, and, with Dr. W. L. Taylor's help, made an examination. The womb was empty and sharply bent backward. It was firmly fixed and imbedded, as it were, in the post-uterine tumor. We strongly suspected extrauterine pregnancy, and to verify the diagnosis, I passed in a medium-sized needle of an aspirator. Although it evidently passed into a cavity, nothing but a little blood came away. When, however, the canula was removed, so free a hemorrhage took place from the small puncture that I was forced to tampon the vagina. On the next morning, I removed the tampon without any further loss of blood. In the evening, abdominal pain with fever set in. On the 5th, these symptoms grew worse. On the 7th, a grumous and offensive discharge began to flow from the vagina. This became more and more copious and offensive, and I looked upon it as curative, hoping to enlarge the opening when I could safely do so, and let out the whole contents. But, on the evening of the 8th inst., the septic symptoms became so formidable that I saw that the case was a hopeless one. She died the next evening with every symptom of blood-poisoning. No post-mortem examination was allowed, because she had made her husband promise that her body should not be opened; but I feel almost absolutely certain that the case was one of extrauterine fetation.

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[1] AMERICAN JOURNAL OF OBSTETRICS, April, 1879, p. 376.

[2] *Ibid.*, July, 1880, p. 504.

[3] Transactions London Obstetrical Society, Vol. XXI., p. 93.

That this use of the aspirator-needle is plainly a hazardous one is proved not only by my unfortunate case, but also by a case of Routh's,[1] and by one of Braxton Hicks',[2] in which aspiration was resorted to. In Routh's case (p. 114), so much bleeding came from the small puncture made by the needle that he had to interfere.

To a seventh case I was called in hurriedly, while the woman lay dying. No autopsy was allowed, but the history pointed unmistakably to an extrauterine fetation of eight weeks' standing, and to the rupture of the oviduct or the cyst. Had I seen the lady a few hours earlier, I would have opened the abdomen, and searched for the bleeding point; but it was then too late.

The history of these cases shows very conclusively that, however clear the treatment may be for those cases in which the fetus is dead or has reached term, it is extremely doubtful what had best be done with those cases which are in the earlier stages, and in the period of development. Each case will have to be treated on its own merits.

Dr. Harris reminded the Society of the two cases of post-uterine abdominal pregnancy, reported by Dr. Joshua G. Allen, in 1872, both of which were cured by the death of the fetuses, effected under repeated applications of the electro-magnetic current. The pregnancies were each illegitimate, and came under observation at an early period, one being computed at three months, and the other at ten weeks. The former was operated upon in 1869, and the latter in 1870. After the death of the fetus, in each instance, the tumor diminished in size, and the woman again menstruated. Both had an attack of peritonitis, and one was for a time confined to bed with pains over the sacrum and down the lower extremities. The two women married; one has had a child, now several years old, and is at this time a widow. The other has not been impregnated since her marriage. Both are now in good health, and the tumors can be felt in Douglas' cul-de-sac. Dr. J. C. Reeve, of Dayton, Ohio, has reported a case similar to those of Dr. Allen, on which he operated by the interrupted galvanic current, and with a similar result. In each case one electrode was placed in the post-cervical cul-de-sac, and the other over the abdomen. It would appear necessary, in order to the destruction of the fetus, that the current should be quite severely felt. Dr. Allen regards his success as perfect in view of the present condition of the subjects. As long as these foreign bodies remain, there will always be a danger that at some future period they may become the nidus of inflammation and abscess. Such an abscess would be likely to point favorably, and discharge its contents per vaginam or per rectum, on account of the position of the fetal mass. As the danger of a developing extrauterine fetus is very great, that of carrying a small one, destroyed by galvanism, is scarcely to be considered in comparison.

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[1] Transactions London Obstetrical Society, Vol. XXI., p. 93.
[2] Transactions London Obstetrical Society, Vol. VII., p. 96.

DR. W. S. STEWART wished to hear whether there were any sure diagnostic signs of extrauterine fetation, as he had made a blunder in a case of that kind.

DR. GOODELL replied that Dr. Stewart did not stand alone in making blunders. A case of this character had been presented to a leading surgeon of this city for a diagnosis, he considered it to be pelvic cellulitis. Dr. Goodell, a month later, found only pelvic peritonitis. At a later period, Dr. Parry, hearing the fetal heart, thought it a normal pregnancy, and laughed at the previous diagnosis. Dr. Goodell was, however, so sure of the previous existence of peritonitis that he told Dr. Parry that something abnormal would yet be found. The case went to full term when the fetus died. An examination revealed what was thought to be a retroverted gravid uterus. The true diagnosis was made finally by Dr. Goodell, more by intuition than by ratiocination.

In another case, the decidual cast had been thrown off from the uterus, there were frequently recurring colicky pains, and the os uteri was soft, yet an exploratory incision proved the case to be one of cellulitis. In another case a decidual sac was thrown off, and the peculiar colicky pains were present. A sound passed into the uterus to the left of a living tumor was freely movable and showed increased depth. There was no doubt, therefore, about the existence of pregnancy, but it was deemed extrauterine. The only circumstance that caused any doubt in Dr. Goodell's mind was alternate contractions and relaxations that were observed in the tumor during palpation. The case turned out to be one of double uterus, and labor was natural.

The symptoms which lead to a suspicion of extrauterine fetation are: Remarkable colicky pains. Uterine hemorrhage when pregnancy is known to be coincident. Expulsion of a decidual cast which does not terminate pregnancy. The condition on an examination closely resembles retroverted gravid uterus. Yet so difficult is the diagnosis in most cases that, in the presence of many physicians, Dieffenbach opened the abdomen of a woman for the removal of a supposed extrauterine fetus, and found nothing abnormal. Further, there is probably no physician of large experience who has not mistaken an extrauterine pregnancy for retroversion of the gravid womb.

Stated Meeting, October 7th, 1880.

The President, DR. LEWIS D. HARLOW, *in the Chair.*

DR. WM. H. PARISH read, for DR. O. P. REX, the following history of a case of

HOUR-GLASS CONTRACTION OF THE UTERUS.

On Friday, Oct. 1st, 1880, I was called to attend in confinement Mrs. M., thirty years of age. Her fifth attempt, but first success in so nearly fulfilling the allotted days of her pregnancy. For the past four weeks she had attempted to live and be strong upon almost nothing, but a week prior to Oct. 1st she gave up, and I then found her very feeble, with an occasional uterine pain. Huxham's tincture created an appetite, which being satisfied with nutritious food, soon gave increasing strength. When on Friday last her labor began, her condition was very favorable. She was then having slow pains, and bitterly complaining of them. They remained the same through Friday night and all day on Saturday until 10 P.M., when on visiting her I found the os slightly opened. Ordered a chloral mixture, and she passed the night with slow pains and intervening naps. On Sunday morning at 10, the uterus gave evidence of not having been idle through the night, by a widely dilated mouth. The presentation was vertex, and the position first. At 10.30 the head engaging well, I ruptured the membranes, and at 11, a healthy, well-formed female child was born.

After a few moments, I made an examination to ascertain the whereabouts of the placenta, when I found entangled in the membranes at the mouth of the womb an oddly feeling mass, which on removal proved to be a compressed fetus, of about eight weeks' growth. This was lying in the same sac that had contained the living child. The womb remaining high up in the abdominal cavity, and the flow of blood being more profuse than natural, I introduced my right hand, and when about midway of the uterine cavity I was opposed by a constriction scarcely admitting the tips of my two fingers and thumb closely in contact. The aperture seemed to be about the size of a silver half-dollar. With my left hand steadying and pressing downward the uterus from above, with much force, which elicited sharp outcries from the patient, I gained entrance to the upper portion of the womb, and attempted to remove the detained placenta. Her struggles had removed her far from me, and in endeavoring to bring her to the bedside my hand was partly displaced from the uterus. In attempting to regain the former position, the same force was needed to overcome the constriction, with the same urgent expressions of pain from the patient. After some difficulty, I obtained full possession of the article sought for, and withdrew it. The placenta being somewhat mutilated, I determined at once to explore the cavity for any fragments that might remain, when I found the uterus in the same condition. As yet at no time had I found the upper segment in any condition of fair contraction. The terrible hemorrhage that occurred and the accompanying syncope is too familiar to all for me to describe. On examining the placenta the lower third gave evidence of having been detached from the uterine wall for some time and was carnified. There was but one sac, which contained, before rupture, a small quantity of fluid. If another sac ever existed, it must have been absorbed by the same pressure which flattened the arrested fetal growth. The chief interest in the case to me is that I met and overcame, with difficulty, a true and resistant constriction in the central portion of the non-contracted uterus, to which has been given the name of hour-glass contraction. Ergot was not administered prior to the removal of the placenta, and traction had not been made on the cord.

Dr. Rex, in reply to a question, said that as far as he was able to judge, the point of constriction was at the junction of the middle and upper thirds of the body of the uterus. External palpation did not show a contracted uterus, and no sulcus could be felt.

Dr. Parish remarked that, in a similar case, he would not dilate the contraction with his hand, but would inject hot water to relax spasm and to overcome paralysis.

Dr. A. H. Smith inquired if Dr. Rex had found an internal os below the point of great constriction?

Dr. Rex replied that only the upper portion of the uterus was relaxed, the lower portion was contracted.

Dr. Reuel Stewart reported the following

CASE OF SUPERFETATION.

During the winter of 1879, I was in attendance upon a lady, at a miscarriage of over six months. After the birth of the six months' infant, and before the delivery of the placenta, I found in the vagina a fetus of about three months' size, but with every evidence of vitality. There was no appearance of compression, or any cause discernible, to produce so great a difference in size and apparent age.

The question raised in my mind was, whether a conception can, as it were, be retarded in growth, while another is regularly developed, or, was this an instance of superfetation?

Stated Meeting, November 4th, 1880.

Vice-President, DR. R. H. CLEEMANN, *in the Chair.*

A paper on

MAMMARY ABSCESS,

by DR. HIRAM CORSON was read by Dr. W. Goodell.[1]

DR. A. H. SMITH had had no experience in the treatment of mammary abscess with ice, but with such a recommendation from Dr. Corson would not be afraid to try it. The method would meet with opposition from nurses and patients, but it would be worth a battle to secure such results.

DR. WM. GOODELL had no experience with ice, but would try it. He did not think the case cited from the *British Medical Journal* a good one to prove the usefulness of this treatment, as a turgid congested breast with tender axillary glands is not dangerous if left alone. The belladonna treatment has been unduly praised for supposed relief in this condition, the fact being that suppuration will not occur unless the breast is bruised by the use of pumps or septic poison is absorbed from a fissured nipple. He intended to become a convert to the ice treatment, but in congested breasts with fissured nipples will try quinia first.

He has yet to see an instance of a gathered breast after a stillborn child.

DR. M. O'HARA remarked that the original cause of the discussion on mammary abscess was a case reported by himself, before this Society in July of last year, in which an abscess occurred before delivery. He wished to use ice locally in this case, but the husband of the patient would not permit it, and low diet was finally successful in checking the secretion of milk, until the milk fistule healed.

DR. WM. H. PARISH, for inflamed, swollen, and fissured nipples, applies cold water by means of discs of cotton cloth, but not to the exclusion of other remedies, such as nitrate of silver when considered necessary.

DR. J. B. WALKER.—The statement of Dr. Corson that the external use of cold when the temperature of the body is high is never followed by a chill is in accord with the teaching of Dr. Jergunson, who uses cold applications to reduce high temperature in pneumonia.

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[1] See ORIGINAL COMMUNICATIONS.

Dr. J. V. Ingham.—Mammary abscess is undoubtedly generally the result of fissured nipple, but if the external application of cold will relieve the congestion which often accompanies the commencement of the secretion of milk, it will be of great usefulness and will save an immense amount of suffering.

Dr. De F. Willard has found the local use of ice to be of great benefit in subduing inflammation of both superficial and deep tissues. In inflammation of joints, it removes the congestion and swelling, and prevents ulterior bad consequences. He thought Dr. Corson's plan a good one and will try it.

Dr. W. S.-Stewart always suspects an abscess of the breast if his patient complains of chilliness not followed by rise of temperature or local tenderness; in twenty-four or thirty-six hours after the chill, the breast is found to be lumpy or "caked." His habit has been to apply fomentations of hot vinegar and ointments of tobacco and belladonna and camphor. Under this treatment no suppuration occurs. He gives quinia freely at the same time. In one case the nipple had been entirely destroyed by suppuration after the first confinement, abscesses followed the second and third deliveries, but in the fourth, which was under his care, the tobacco ointment was used and no trouble was experienced.

Dr. Goodell thought that if a breast had gathered once, the best plan in future confinements was to let it alone. Support the breast and give morphia in sufficient doses to alleviate the pain from the distention of the gland. If pumps are used or the nipple becomes excoriated, an abscess may result, but not otherwise.

Another trouble sometimes met with is termed "weed;" it occurs about the tenth day and does not depend on the existence of chapped or irritated nipples. The symptoms are headache, high temperature, and a tender breast, which becomes swelled and painful, it is flushed and purple but not glistening, it is not caked. If quinia is given largely, with morphia to subdue the pain, it soon disappears.

Dr. Walker had recently under his care a patient who was suffering from congestion of the mammary gland with intense pain. Dr. Duer recommended a hot camphor stupe on muslin covered with oiled-silk, an intense superficial heat was felt, with rapid sweating and quick relief to the congestion and pain.

Dr. R. P. Harris related his experience in letting a damaged breast alone. Originally several abscesses had occurred in the left breast, and the nipple was entirely gone. In a subsequent labor, twenty-four hours after the child was born, the gland was covered with soap plaster spread on sheepskin, long adhesive straps were passed over it and entirely around the body, tightly compressing and supporting the breast. The treatment was successful. On a subsequent occasion when this was neglected, an abscess again occurred.

Dr. C. R. Prall had seen examples of the trouble described so graphically by Dr. Goodell as "weed"; he had used quinia in such cases with success.

Dr. A. H. Smith exhibited to the Society a specimen of crystallized calcium benzoate, prepared by James T. Shinn. He had used it in place of potassium benzoate recommended by Prof. Chas. Meigs in the albuminuria of pregnancy. The new salt has no unpleasant taste and may be used in doses of ten grains every two hours. In a recent case suffering from albuminuria, one-half albumen, vertigo, loss of vision, anasarca of face, hands, and limbs, this salt was used with rapid improvement in all of the symptoms; when the remedy was stopped, the condition quickly returned, but again subsided on renewing the treatment.

ABSTRACT OF THE

TRANSACTIONS OF THE GERMAN GYNECOLOGICAL SOCIETY.

SECTION XVIII. OF THE FIFTY-THIRD ANNUAL MEETING OF GERMAN NATURALISTS AND PHYSICIANS.

Held in Danzig.

First Session.

Dr. Abegg (Danzig) *in the Chair.*

Martin (Berlin) presented a paper on

INTRAUTERINE MEDICATION.

The question of intrauterine medication seemed to have been terminated several years ago. If nothing had been attained, at least the application to the endometrium of ointments, caustic crayons, etc., had been abandoned. Dilatation was resorted to, together with other energetic means, the actual cautery, scraping with the curette, and others. This procedure has long been in vogue. A reaction set in against slow dilating agents. Without any special opposition, even laminaria have been almost universally laid aside. Schröder employs sanguinary dilatation. It has extraordinary advantages; particularly the one that the wounds can again be closed by sutures. Besides, Fritsch, Hegar, and others have constructed and recommended dilators on the principle of

Simon's urethral specula. Schultze, too, has devised a forceps-shaped dilator. It cannot be denied that these methods answer their purpose, but objections may be raised against every one of them. Take, for instance, tents: their employment is tedious, complicated, often they have not the desired effect, do not assume the required position, contractions ensue which must subsequently be dilated. But these measures are especially counter-indicated when the perineum is no longer intact. Dormant peritoneal processes may be rekindled, serious complications may arise. But it is this very complication of pelvic peritonitis which is so frequent that in the majority of cases we must deduce from it a counter-indication to tents. Nor is discission free from objections—the suture is often difficult, and the sequelæ of this difficult suture may likewise enter into the consideration. For these reasons Martin has abandoned these procedures. By Schultze's method of irrigating the uterus, only relative cure can be attained. The processes extend too deeply into the tissues to render a lasting result from so mild a procedure possible. Relapses soon ensue after a momentary intermission. The germ of relapses is thus left behind. Therefore, considering the far-reaching alterations of the tissues, energetic measures must be employed. The denudation must be penetrating. Martin recommends the curette as the best means. His method is distinguished by the fact that dilatation is not employed. The uterus is fixed by means of tenaculum forceps, and its inner surface is scraped out without any dilatation. Then liquor ferri is injected. Martin exhibited an instrument modelled after the curette of Roux, but larger and more substantial.

Neugebauer agreed with Martin's reasoning, and admitted that he might succeed with multiparæ. But every cavity is not yielding; for instance, how could the angle at the opening of the tube into the uterus be scraped out, in nulliparæ? Despite the "scalping" of the inner surface of the uterus, large remnants were certainly left behind. Therefore, Neugebauer believed the injections in general to be more important. Even Martin did not succeed without them.

Martin replied that during the curetting of the uterus the hands must be applied externally, pressing the uterus toward the operator, then every part can be reached, and neither remnants of the mucosa nor angles need be feared.

Grünewald (St. Petersburg) coincided with Martin's opinion of the indications, but did not think his method sufficiently effective. If the orifice is not opened, all parts cannot be reached, particularly the posterior uterine wall. At any rate, the uterus must often be made preparatorily accessible. The danger lies in leaving the dilating agent too long *in situ;* this may be avoided by employing carbolized sponge-tents which swell very rapidly. Grünewald thinks it very important, before scraping, to palpate the cavity, which is rendered possible after the introduction of sponge-tents, but often fails without previous dilatation. He also feared injury to the tissues by Martin's instrument, which is otherwise very good.

SCHRÖDER has given up dilating for the last few years, but has succeeded in scraping out even the virgin uterus with the sharp spoon. It may almost invariably be done, as the cervix becomes more tractable during the manipulation. For that reason a larger spoon may subsequently be employed with facility, while a smaller one at first was difficult to handle. But in one point he differs from Martin—regarding the prognosis. Schröder did not desire to express a positive opinion until he had had several more years' experience; but for the present he could say that he had been impressed with the fact that this energetic method likewise has a palliative character. The cases differ greatly. Without and with cauterization, without and with energetic treatment, relapses are very likely to occur. Even malignant degenerations show great individual fluctuations as regards relapses. The prognosis, therefore, according to Schröder, is not favorable.

MARTIN, in reply to Grünewald, observed that sponge-tents could not be introduced where the os uteri is narrow. Where the uterus, however, is relaxed, even the finger may be inserted. Injury to the tissue he does not think at all likely to occur. He admitted the frequency of relapses.

SCHRÖDER (Berlin) read a paper on

EXTIRPATION OF THE CARCINOMATOUS UTERUS THROUGH THE VAGINA.

Since ovariotomy has made its triumphal march through all civilized countries, it has also been attempted to extirpate other uterine tumors. Thus proportionately favorable results were obtained in the removal of myomata. Not as good were those secured in the extirpations of the carcinomatous uterus. Statistics show in general a very gloomy prognosis for the technically certain method of Freund. It may be asked whether it would not be better to remove the uterus from the vagina instead of by laparotomy, the more so, as the carcinoma mostly attacks the cervix. Of course, the body of the uterus may be easily amputated by laparotomy, but the more deeply we have to penetrate from above, the more uncertain grow the results. Schröder has heretofore proposed to excise the cervix uteri supravaginally from below. Twenty-eight cases were operated upon, and only three women died—two from infection, one from hemorrhage. Assuredly the danger here is not greater than in the larger colporrhaphies. But the entire uterus, too, may be removed through the vagina. It is well known that Billroth and Czerny operated in this manner. Schröder has operated six times after this method, and one of his assistants once. Of these seven, only one patient died of hemorrhage, not from the pedicle, but from a rupture in the broad ligament. Death ensued from gradual internal hemorrhage.

The operative procedure briefly is the following: A Muzeux forceps is inserted into each lip of the os, for the purpose of drawing the uterus downward. Then the vagina is cut through round about the portio vaginalis. It is often much thicker than is generally supposed. The bladder is separated from the cervix —an easy procedure, as the connective tissue between the two organs is loose and easily separable. The bladder escapes upward; therefore, the ureters cannot well be injured. Next the posterior surface of the uterus must be freed. Douglas' pouch is opened. Its two folds, during the forcible downward traction, are often close together. The scissors may be employed for widening the posterior opening. The uterus is then inverted from behind. This is easy at times; but very difficult when the uterus is large and stiff. After inversion, the uterus lies in the vagina; then the peritoneum of the vesico-uterine excavation is cut into, and the uterus is attached only to the broad ligaments. It is very difficult to dispose of them; the hemorrhage is not large, because the downward traction prevents it at first; but secondary hemorrhage is to be feared. In ligating, Schröder prefers to leave the tubes and ovaries in the pelvis, because the pedicle is longer that way. Dividing above the ovaries prevents the place of ligation from being drawn into the vagina, or fastened there. The spermatic arteries, together with the infundibulo-pelvic ligament, draw upwards. For this reason, in one case, a very difficult and tedious circumligation was required. Ligation may be performed *en masse*, or in portions, or both. Then division is performed close to the uterus. The uterus may now be drawn down with great facility, and the ligation of the other side is much easier. Both stumps are sewed into the vagina. A drainage tube is inserted into the central opening. Schröder thinks that the manner of disposing of the stumps is capable of improvement; for instance, small wire snares may be employed.

The prognosis is good. This assertion is not based upon statistics, but on the impression produced by those who have recovered. A very easy convalescence was the rule. Two or three times some fever set in, and some small exudations could be demonstrated, but no patient was in danger of her life. Particularly important and decidedly in favor of the operation is the fact that there is no collapse. Two patients lost so much blood that the pulse could no longer be felt, but no collapse or shock followed. With laparotomies, however, it is the rule that such patients perish. Those operated on by Schröder reacted like puerperæ after considerable hemorrhages, that is to say, they recovered rapidly and perfectly, so that Schröder became impressed with the great difference in the importance between the superior and the inferior methods of operation. At all events, it is most important that the frequent danger to life which is referred to shock no longer exists therein.

As regards the indications, in the first place, it must not be thought that many cases occur in which the entire uterus must be extirpated. The operation can no longer be performed when carcinomatous nodules can be demonstrated in the pelvic connective tissue. Not only extensive infiltrations, but also quite small nodules, as they are often demonstrated by careful palpation in Douglas' folds, form a counter-indication. On thorough palpation, these characteristic nodes are found very frequently. Also in carcinoma corporis, Schröder's operation can often not be performed, because a laparotomy, in which the body of the uterus alone is removed, is easier and less dangerous. Should perhaps the cervical mucosa be likewise attacked, the cervix might be peeled off and then sewed up. At any rate, this is far less dangerous than Freund's operation. In carcinoma corporis, laparotomy with amputation at the internal os might become the typical operation. Total extirpation, however, must be performed in affections of the cervix. The vagina may be likewise affected, but the section must extend to one, possibly two centimetres from the new formation. In this way, of course, the operation finds its limits—if the carcinoma goes too far, operation is impossible.

In six cases, Schröder performed supravaginal amputation. In these, doubt existed whether the degeneration had not extended to the uterine cavity.

As the last counter-indication Schröder mentions the difficulties caused by too great size of the uterus. The operation should be most easy in a roomy pelvis and an ample vagina.

Martin (Berlin) has three times attempted the removal of the uterus from below. In the first case, he finished the difficult operation. The uterus was thick, and although it seemed to be movable, was largely adherent. There was little room by the side of the thickened uterus. Besides, the whole uterus was so friable that hooks and forceps would not hold. Still it was possible to remove the whole of it, but piecemeal. The uninterrupted convalescence produced upon Martin, likewise, the impression as if the operative interference could be easily recovered from.

The other two operations were much more difficult. In the second case, the uterus appeared to be fixed in front, but Martin hoped to be able to free it. The uterus was adherent to the upper margin of the symphysis; therefore, detachment did not succeed perfectly. The friable uterus furnished no hold, a portion remained attached anteriorly. Martin closed the opening in the vagina by suture, the stumps were fastened at the sides, and the peritoneal space was drained. The patient remained in good condition, without any symptoms of reaction, left her bed on the ninth day, and died suddenly on the tenth day. No autopsy.

The third case was similar and terminated in recovery. Martin would not operate if the fixation is extensive. If the uterus is immovable, the prognosis is unfavorable, as it is also in extensive degeneration and friability.

Schröder sews with silk and ordinary curved needles, first laterally outward, and the stump almost between the two margins of the vaginal wound, so that possibly bleeding vessels or discharging wounds project into the vagina. The sutures remain two weeks. Injections only during fever. As to the observations of Martin, Schröder remarked that benign adhesions should be separated from the malignant fixations. When the adhesions are benign, they are easily separated. But adhesions caused by the formation of tumors tear. Be the uterus ever so friable, the operation is still possible; so, for instance, Schröder operated in a case where the soft nature of the growth had severed the continuity of the uterus at the internal os. The cervix was torn off, but the body could still be removed.

BAUM (Danzig) expressed his gratification that, in the paper he had just then read before the surgical section, he had said nothing at variance with Schröder. He had performed the radical supravaginal amputation of Schröder seven times, meeting with no reaction. Baum performs total extirpation after Billroth and others; he does not invert the uterus. In one case he had left tubes and ovaries in the body. In the other case, both tubes were filled with ichor and had to be removed. B. did not sew, but left everything open; uses drainage tube, but irrigates only when the temperature rises. Baum operated four times; twice with perfect success; one death from hemorrhage, one from septic peritonitis.

SCHRÖDER would still apply the vaginal suture, which is not to be charged with suppuration. Coils of intestine may become incarcerated. Enterocele into the vagina is any way possible.

Second (Afternoon) Session.

PROF. SCHRÖDER (Berlin) *in the Chair.*

VEIT (Berlin) spoke on

CANCER OF THE BODY OF THE UTERUS.

This form of carcinoma is inaccurately described, because no one has seen many cases. V. collected eighty cases from literature and himself observed twenty-one cases. The examinations were made together with C. Ruge. The greater part of the cases from literature are of no use, they are too obscure, and inaccurately described. Of indubitable ones only twenty-three remain, so that Veit and Ruge have a material of forty-three cases, including their own. The circumstances that Veit saw twenty-one cases in three years should alone demonstrate that they are not very rare. V. came to the conclusion that, beyond any doubt, carcinoma of the body is always a glandular carcinoma. Different forms occur, depending on the early disintegration of the new-formation, so that the degeneration increases layer by layer, the cavity becomes larger, while the neoplasm itself is not thick. But a circumscribed spot may become affected, and a node form from that starting-point. In other cases, the uterus is tense, and large nodes spring from it. No case has been observed in which the mucosa was not implicated. The musculature has but a slight tendency to carcinomatous degeneration; the peritoneum rarely participates.

Veit is in favor of the view as to its origin from adenoma. Microscopical examination determines the diagnosis. The most important of the characteristic symptoms is the intermittent, labor-like pain.

Third Session.

FRITSCH (Halle) *in the Chair.*

LÖHLEIN read a paper entitled:

REMARKS ON THE PROGNOSIS OF PUERPERAL ECLAMPSIA.

The mortality of eclampsia is still very high. L. bases his remarks on one hundred and twenty-six cases from the Berlin clinic, with a mortality of thirty-two per cent. The reports from Königsberg, Dresden, and the Charité do not yield any better results. The prognosis, in spite of all the new measures, has not become any better. Neither chloral nor morphine treatment, nor the frequently excellent and most rational wet-sheet wrappings recommended by Jaquet (Berlin), nor pilocarpine were able to improve the prognosis. The prognosis is the more unfavorable, the more pronounced the functional disturbance of the kidney is—by which is not meant pathologico-anatomical disturbance. L. cannot by any means assent to the explanation of Spiegelberg, who assumes an epileptogenous zone in the domain of the sciatic nerve, for eclampsia without albuminuria. In the first place, eclampsia without albuminuria is very rare. L. saw only four cases. But undoubtedly a good many cases occur in which the urine contains albumen only in consequence of the attacks. He assumes as of etiological importance a *retro-stasis by compression of the ureters.* Not all cases can be explained in this way, but a great many. The nearer to the end of gestation the attack of eclampsia occurs, the better is the prognosis. The same observation holds good for the children; the cause of this latter circumstance is the small number of the attacks. L. proves from his statistics that these late occurring eclampsias are in general not dangerous. We have to deal with less developed uremic intoxications. On the other hand, the prognosis is very unfavorable (40.5% of deaths) when the eclampsia commences during pregnancy. This difference explains that the views regarding the therapeutical value of the one or the other method are so widely divergent. L. believes a prophylaxis to be absolutely possible, necessary, and effective. In albuminuria, the rapid increase of abdominal pressure must be prevented. Rest, proper diet, latero-ventral decubitus, and evacuants are to be recommended. Where cerebral symptoms appear: induced premature labor. Where there is compression of the ureters—neuralgic affections, drawing pains in the abdomen, pain in the region of the kidney—rapid delivery is also to be advised.

SCHRÖDER (Berlin) is convinced that nephritis during pregnancy is extremely dangerous. If the pregnancy goes to term, a fatal or incurable disease of the kidneys most generally remains behind. If, however, the pregnancy is terminated in time, the commencing kidney affection again heals. He does not desire to enter into the reason why nephritis during pregnancy grows so rapidly worse, he only wishes to state that his experience has demonstrated that in nephritis itself exists an indication for artificial abortion. The child's life does not enter into the question, when the maternal life can be saved. S. most urgently recommends to terminate the pregnancy at once when albuminuria occurs. These women may recover completely, and in future may have normal labors.

LÖHLEIN remarked that he had made eclampsia the main theme of his paper, and for that reason had not discussed the question of the complication of nephritis with pregnancy in its full bearing.

RUGE (Berlin) read a paper on

THE VARIETIES OF UTERINE CARCINOMA,

which was accompanied with some very instructive drawings. Anatomically and clinically, we undoubtedly can keep three forms strictly separate: 1st. Carcinoma of the portio vaginalis. It originates beneath the pavement epithelium of the portio vaginalis, proliferates into the vagina which it attacks, but it does not progress into the cervix. 2d. Carcinoma of the cervix. It originates on the interior surface of the cervix, grows up to the internal os, and destroys the portio vaginalis. 3d. Carcinoma of the body, which does not grow downward beyond the os internum.

REVIEWS.

DIAGNOSTIC ET TRAITEMENT DES TUMEURS DE L'ABDOMEN ET DU BASSIN. Par J. PÉAN, Chirurgien de l'Hôpital Saint Louis. Tome Premier. Avec 141 figures intercalées dans le texte. Paris: Delahaye et Cie., 1880, pp. vii., 1180.

DIAGNOSIS AND TREATMENT OF THE TUMORS OF THE ABDOMEN AND PELVIS. By J. PÉAN, Surgeon to St. Louis Hospital. Volume I., with 141 figures interspersed in the Text. Paris: Delahaye, 1880, pp. vii., 1180.

The name of M. Péan is too intimately connected with the greatest gynecological operations, especially ovariotomy and the ablation of the uterus, that we can afford to leave unnoticed a large work of his, although it does not treat exclusively of gynecological patients. I must confess that my first impression on looking over the table of contents was that of disappointment and surprise. I was especially curious to see a continuation of the report of the author's experience with the extirpation of the uterus, an operation which he has performed with unequalled success, having saved twenty-six patients out of thirty-eight.[1] But the author tells us in his preface that, having found it necessary to treat of all the tumors growing from the walls and the viscera of the abdomen, he has been obliged to divide his work in two volumes, and reserve for the second all the tumors which have their seat in the pelvic organs. This second volume is already being printed.

The surprise was caused by finding that the term tumors was extended to mere augmentations of volume due to air, fluids, or feces, and mere deplacements, such as the different kinds of herniæ. If such conditions are not usually comprised within the limits of what we pathologically call a tumor, they certainly all give rise to swelling and sometimes simulate real tumors so closely that the surgeon has to be on his guard in order not to be led into error. M. Péan's book being of an entirely practical nature, it came quite natural to him to unite all the conditions which either are or may be taken for tumors.

Strictly speaking, the subjects of this volume lie outside of the domain of gynecology, which is limited to the study of the diseases of the female genital organs; but as soon as we come to practice it is otherwise. A lady patient, discovering a swelling somewhere in her abdomen, will most likely consult a gynecologist if she has a chance, and he will have to find out if a tumor really exists and where it springs from. Sometimes it will be impossible to decide this without making an exploratory incision, and if the case is operable at all, he will, of course, go on even if the disease is not seated in the organs which he has made a special object of study. In the second place, most of the operations on the abdominal organs have so much in common that no one is more likely to perform the rarer of them creditably than those who are accustomed to perform the commoner. An experienced ovariotomist will be the very best surgeon both for diagnosticating and for operating a tumor in another abdominal organ than the ovary. It is likewise to be supposed that the subscribers to a special journal, which in a great measure is devoted to the study of the diseases of women, will be glad to get an idea of a work written by a man who has so large an experience in this kind of diseases, and on a subject so intimately connected with them.

In the first part M. Péan has united general rules for the diagnosis and the treatment of abdominal tumors. In speaking of percussion, he recommends the plessimeter of Peter, which gives a very clear sound and has a dermographic pencil which affords an easy means of marking the limit between the clear and the dull sound, and delineating the boundaries of a tumor—a method much praised by the author.

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[1] Péan: Clinique chirurgicale, T. II., p. 832, Paris, 1879. See also: Péan et Urdy. Hystérotomie, Paris, Delahaye, 1873.

He says that in virgins rectal exploration is the only one permissible. This is a point worth considering. I for one think that this goes too far. In my experience the exploration by the rectum, valuable in some cases as an adjuvant, gives rather poor results if limited to itself. And if by the rectal examination we find a disease of the womb, *e. g.*, a flexion, we are anyhow obliged to treat this through the vagina. On the other hand, there is no doubt that vaginal explorations are often performed when uncalled for, and that they are performed in such a careless way as not only to give much pain, but to leave indelible traces which may give rise to a false interpretation. If the index is well anointed, introduced very gently and pressed as much forward, toward the symphysis pubis as possible, an exploration can be performed without tearing the hymen. If the treatment necessitates a frequent repetition of this act or the introduction of a speculum, this membrane will lose much of its tightness, it is gradually dilated, but it does not tear, and the appearance is entirely different from that produced by coition.

Péan finds Simon's rectal exploration, in which the whole hand and part of the fore-arm are introduced into the intestine, so as to enable the surgeon to palpate even the lower surface of the liver, too fraught with dangers.

He thinks that the physical, chemical, and histological examination of fluids contained in tumors, although the results are not as yet so accurate as we may hope to see them some day, offers one of the safest means of diagnosis.

Among the general rules for treatment he considers the question if the presence of the catamenial flow necessitates a delay of an operation. Unfortunately by a *lapsus pennæ* the author says: "Evidemment *non*, à moins d'urgence absolue et pour peu qu'on soit libre de choisir son heure." Leave out the word *non*, and you get the idea of the author. As a rule, an operation ought of course not to be undertaken during menstruation, but he points out as exceptions, first, cases where there is so continuous a bleeding that it is impossible to tell when menstruation supervenes, and secondly, cases where the catamenia have just begun, and where there is already so great an anemia caused by bleeding from a tumor that a repetition would jeopardize the life of the patient. He has successfully extirpated large ovarian and uterine tumors under these circumstances.

Next he examines different acute and chronic diseases in their relations to operations. He holds that chronic diseases of the lungs, such as asthma, spasmodic catarrh, chronic bronchitis, are counter-indications of operations. He also points to the gravity of the prognosis concerning operations on patients suffering from paraplegia, bulimy, pronounced dyspepsia, or violent neuralgia.

He has found that the presence of hydrothorax, single or double, recent or of old date, adds seriously to the dangers of ovariotomy.

He declares the wards of large hospitals to be improper places for great operations, especially those interesting the peritoneum. This is explained by the fact that he has not adopted the antiseptic method of operating and dressing. He only takes the precaution to rub his instruments with alcohol or pass them through the flame of an alcohol lamp. He performs all his large operations, such as ovariotomies and hysterotomies, in Lavallois-Perret, a suburb of Paris. Nowhere has the life-saving importance of Listerism become more apparent than in the German Hospitals. Formerly, one-half of the patients died.[1] Now long runs of successes are reported.

Péan's predilection for the twisted suture is also rather old-fashioned.

As hemostatic he uses, instead of ligatures, the small forceps which he claims to be his own invention, while Koeberlé has proved[2] that they are only imitations of those used a whole year before by him in the presence of the numerous physicians who from all parts of the world go to witness his ovariotomies at Strasbourg, and described in Parisian journals at the time.

He recommends a particular way of cauterizing with the potential cautery. He pushes a small trocar into the cyst he wants to open, withdraws the stylet and plugs up the canula. Next a piece of sticking plaster with a hole a little smaller than the desired size of the eschar is applied around the canula, and filled with potassa cum calce or Canquoin's paste. The eschar is divided with a bistoury and dissected off. When this has been repeated two or three times, he inserts a narrow-bladed bistoury along the canula, turning the edge outside, on two sides. In the opening thus produced, he pushes a piece of caustic potassa. The eschar is again split, and the operation repeated, until one gets near the peritoneum. At this depth the eschar is only taken away from the wound, and new caustic applied without using the bistoury to make a way for it. This use of the bistoury seems rather dangerous. It is impossible to tell with certainty how far its point is from the peritoneum. The desire of saving time can be gratified in an entirely safe way by cutting through the skin and the subjacent parts layer by layer, so as to leave only one muscular or aponeurotic layer of the abdominal wall before we apply the caustic. This is the procedure I have recommended in the treatment of hydatids in the liver.[3]

With regard to the now so much discussed question of anesthetics, Péan says he has tried nitrous oxide, ether, bichloride of methylene, and chloroform, and prefers the latter. He says that ether takes more time, provokes more excitement, does not annihilate sensibility with the same certainty (?), and is more distressing for the operator. He seems to doubt the greater safety of ether. At this occasion I would like to record the fact that, since the introduction of chloroform, this anesthetic has been the only one used in Denmark, and that in all the many thousands of cases in which it has been used during more than thirty years elapsed since then, there has only been a single case of death due to the use of the anesthetic. Now Denmark is so small a country, the population so dense, and everything so minutely supervised, that it is absolutely certain that there has been no other death from this cause. On the other hand, I have, within a few years, noticed three cases of death from etherization in or near New York. Dr. T. A. Emmet has pointed out the danger of ether, where kidney disease is present,[1] and he, as well as Drs. Skene and Gouley, state that in many cases the presence of kidney disease cannot be made out beforehand.[2] I think, therefore, that the dread of chloroform prevailing in some parts of the country, and which goes so far as to demand a prohibition of its use, and the confidence in ether are both exaggerated. Mr. Péan, as I have had the opportunity to see, when I visited him in 1872, is a very deliberate operator. His procedures are often complicated, and he undertakes and carries through the most difficult extirpations. Consequently, his operations are unusually long. Three of his extirpations of the uterus took three hours, one three and a half hours, an extirpation of a tumor in the mesentery even four hours, and he has never lost a patient from the effects of chloroform.

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[1] Keith: Ovariotomy before and after Antiseptics, Edinburgh, 1878, p. 6.

[2] E. Koeberlé: De l'Hémostasie définitive par compression excessive. Paris, Baillière et Fils, 1877.

[3] Brooklyn Proceedings, July, 1876, p. 131.

A consequence of the long duration of his operations is the necessity of performing them in a sitting posture. He has constructed a low operating table and places himself on a chair between the legs of the patient, which are wrapped in blankets and fastened in wire *gouttières*.

He uses also a prodigious number of assistants. Half a score are his usual staff for an ovariotomy. He thinks this necessary. Coming at the time directly from London, where Mr. Spencer Wells never used more than three, it struck me that the numerous assistants were not only superfluous, but actually were in one another's way and contributed to the tediousness of the operation.

In ovariotomies he drops the pedicle if it is thin; if it is thick he secures it in the lower end of the wound by compressing it with Cintrat's serre-nœud ligateur, a very ingenious improvement of Koeberlé's instrument, and passing a couple of strong needles cross-wise above the ligateurs. The wound is closed in a very complicated way by combining twisted sutures with deep silver-wire loops and superficial threads glued to the skin with collodium at one end and tied together at the other end. As a rule, he places ice-bags on the abdomen in order to prevent peritonitis.

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[1] Principles and Practice of Gynecology, 2d ed., Philadelphia, 1880, p. 746.

[2] Discussion in the New York Obstetrical Society, in 1878. See this JOURNAL, Vol. XI., p. 785.

He says that it is not rare to see the menstrual flow come on a few days after the operation, even if the patient had menstruated shortly before, and that this flow may be observed in cases where both ovaries and the uterus have been removed.

He condemns immediate drainage of the abdominal cavity. If necessary, a rubber tube may be introduced later between the lips of the wound, or the posterior cul-de-sac may be opened, a rubber tube or elastic catheter introduced, and antiseptic fluids injected.

The second part, forming the bulk of the volume, treats of the tumors of the abdomen.

The first chapter discusses those springing from the walls. In five paragraphs the author follows the different kinds of tumors such as abscesses, cysts, and solid tumors from their seat on the skin, layer after layer, down through the abdominal wall, finishing with aneurisms of the aorta and its branches.

The second chapter is devoted to tumors of the kidneys After having spoken of anomalies as to number, situation, and size of this organ, the author treats of the floating kidney. Here he seems to have rather limited personal experience and gives mostly that of others. The fact that the right kidney is much oftener displaced than the left is illustrated by Fritz's compiled statistics, comprising 35 cases, 19 of which occurred on the right side, 9 on the left, while 7 were bilateral. Howitz has written an article on this subject[1] based on his own personal experience of 27 cases seen within a few years. In 22 of these, the kidney affected was the right one, which is a still more striking majority than that of Fritz's statistics.

I doubt that the author is right when he says that the floating kidney usually goes upward toward the hypochondrium, and is rarely found floating in the epigastrium. Howitz states that it floats, as a rule, toward the umbilicus, and in one of his cases it reached even the rim of the pelvis. This descending direction seems more naturally to follow from gravitation, and in the few cases I have seen myself, the kidney was also found discolated downward, inward, and forward to the side of the umbilicus.

The fact to which Péan alludes, that floating kidney is often found together with other displacements, as if certain patients had a general tendency to weakness of the tissues, is borne out by Howitz, who found it complicated with flexion of the uterus in seven cases, hernia in one case, beside ovarian cyst in one case, and fibroid of the uterus in one case.

The description of the different kinds of swellings formed in and around the kidney fills nearly a hundred pages and is of great importance for gynecologists. Even operators ranking among the very first of the profession have mistaken cysts of the kidney or its pelvis for an ovarian cyst.

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[1] Hospitalstidende, 1873, p. 53.

In enumerating the different kinds of cancer found in the kidney, he mentions also (p. 216) adenoma, but this kind of tumor, although of epithelial origin, is always benign.

A very important chapter is that on nephrotomy. The author, who certainly is no timid surgeon, advises the operator, who, believing to have to deal with an ovarian cyst, finds that it is a renal cyst, not to follow the example of Peaslee, Meadows, Campbell, and Spiegelberg, who extirpated—or tried to extirpate—cyst and kidney, but only to remove a part of the cyst. After having punctured the cyst and drawn it out as far as possible, he advises to cut off the external part, transfix the mouth thus formed with a double metallic ligature, compress each half with one of the ligatures, introduce between the two ligatures a canula through which antiseptics and alteratives may be injected into the sac, and fix this pedicle into the lower end of the abdominal wound, like that of an ovarian cyst.

On the other hand, he is not absolutely opposed to the operation of nephrotomy as first performed in 1870 by Simon of Heidelberg. He knows only seven cases in which it has been performed. But of late the number has increased considerably, and the results are encouraging.

Péan thinks that the operation is justifiable, but points out, not only the danger and difficulty of the operation, but also the difficulty of making a reliable diagnosis. In Durham's case, supposed to be calculous nephritis, the kidney was found healthy. In Peter's, the same diagnosis had been made, but the operation revealed cheesy degeneration, not only of the kidney, but of the neighboring organs. In a case recently operated by Dr. F. Lange, of New York, the patient died of uremia, and at the autopsy the other kidney was found entirely transformed to cysts (New York *Med. Rec.*, August 7th, 1880).

In pyelitis with stone, puncture will rarely suffice. Péan recommends, therefore, incision. Of late an interesting case, in which a good result was obtained in a less dangerous way by aspiration, dilatation with laminaria, and extraction with a pair of forceps has been published (New York *Medical Record*, July 24th, 1880).

In a work that, although so voluminous, is limited to diagnosis and treatment, it is quite natural that the author tries to make the diagnosis as sharp as possible, and most readers will certainly derive much benefit by following his distinctions. In some places he seems, however, to push things rather far, and to be more guided by *a priori* reasoning than by actual experience. Thus we find at page 282 the description of a serous cyst of the mesocolon, found at the autopsy by Cruveilhier, who adds that on the living patient he certainly would have taken it for an ovarian cyst. This induces the author to give a detailed differential diagnosis between ovarian cysts and this cyst which was seated in the subperitoneal connective tissue of the posterior wall of the abdomen, separating the layers of the mesocolon. Ovarian cysts, says he, do not rise so high up along the lumbar column, at least not in the beginning; they are mobile, roll under the hand that presses them, and are easily pushed down to the bottom of the pelvis. These characters would necessarily fail to be found in a tumor situated beneath the peritoneum, in the fold of the mesocolon. When an ovarian cyst attains the size of a gravid uterus at term, it presses the intestines backwards and upwards, leaving a limited surface with clear resonance above the tumor. The retro-peritoneal cyst, on the contrary, driving the intestines forward, will give a more extensive sonorousness. On profound percussion in the lumbar region the phenomena will be inverted; in ovarian cysts, the sound will be clear, while a serous cyst developed in the perirenal or subperitoneal connective tissue will give a more marked dulness on one side of the vertebral column than on the other.

All this is very well reasoned from an *a priori* stand-point, and the reader feels as if he would not be likely to commit the same blunder as Cruveilhier. But unfortunately—or fortunately—a case exactly like that of the latter has been observed on the living subject by Dr. R. Watts, of this city, and here the tumor was very movable, seemed to lie just under the skin, and could apparently be lifted out of the abdomen by the hands pressing underneath it. There was dulness over the tumor, and resonance above it and in both flanks. The diagnosis of ovarian tumor was made, and confirmed by Dr. T. A. Emmet. Even when the tumor was exposed to view, it was still thought to be one of the left ovary having developed behind the peritoneum. But it was found not to have any pedicle whatever, and was removed entire by stripping off the investing layer of the mesocolon.[1] Thus experience sometimes sets at naught even the most ingenious argument.

The next chapter, in which the tumors of the peritoneum are discussed, is highly interesting. It is instructive in treating in an exhaustive way of many rare cases, and will afford consolation to operators who are surprised to find things very different from what they expected before opening the abdomen. Nay, the organs may be so mixed up that, even after an autopsy, competent judges disagree upon the true seat of a tumor.

It is not quite correct when the author says, p. 359, that the retro-uterine hematocele suddenly forms a tumor which is hard *at first*, but may become soft later, if suppuration sets in. Before the hard stage there is another when the tumor, formed of free blood poured into the peritoneum, is even fluctuating.

Page 398, the author gives the specific gravity of ascitic fluid as varying between 1005 and 1015. I have myself found it as dense as 1022.

The tumors of the stomach lie somewhat beyond the domain of the gynecologist, and still he had better bear them in mind, since recently a dilatation of the stomach was taken for an ovarian cyst and operated on.[2]

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[1] AMER. JOURN. OBST., April, 1879, p. 334.

[2] See Detroit *Lancet*, January, 1880.

No less than three hundred pages are consecrated to what the author considers as "tumors" of the intestines. How far he stretches this appellation appears from the fact that he describes even incised wounds and their treatment. But many things in this chapter are of the greatest interest to the gynecologist, both in view of diagnosis and treatment. Thus he relates how a simple fecal tumor in one case was taken for an inflamed ovarian cyst, in another, for a retro-uterine hematocele. Often an internal oblique hernia, instead of descending into the labium majus, goes directly down to the upper part of the thigh, in front of the crural ring, so as to simulate a crural rupture.

Instead of using simple water for rectal injections in cases of intestinal occlusion by volvulus or invagination, the author recommends carbonic acid water, which is easily introduced by fitting a rubber tube between a common syphon, as they are found in drug-stores, and a long tube introduced as high up as possible into the colon. Two or three syphons full may be necessary. At page 749 we note one of these *lapsus pennæ* which are not quite rare in the work. It is said that usually an incision of five *centimetres* of the neck of the hernial sack is sufficient. The author means of course millimetres.

Among the tumors of the liver, the remarks on so-called *floating liver* are especially interesting, as this disease is scarcely described in any text-book. It is a rare disease, only ten cases having been published, and no autopsy having been made as yet. Among the causes alleged, frequent pregnancies and ovariotomy seem to be the most reasonable. The disease consists in a lateral displacement of the organ toward the left side, while the intestines occupy its place in the right hypochondrium. A tumor is seen in the epigastric region, of the shape and consistency of the liver. It is easily replaced to the right hypochondrium, while it cannot be brought further in the opposite direction. Percussion gives a dull sound over the tumor, a tympanitic over the right hypochondrium. The tumor is indolent. In the right lateral decubitus it returns to its normal place. During respiration it follows the movements of the diaphragm.

Speaking of *hydatids* of the liver, he recommends always to try aspiration first, except when the cyst has suppurated. Here he prefers caustics or a large trocar, the canula of which is left until adhesions have formed.

The chapter on tumors of the spleen is highly instructive. Péan has twice removed the whole organ, once for cystic degeneration and once for hypertrophy, and been successful both times —a result so much more remarkable as there are in all only five successes in twenty-four operations of splenectomy. The author gives an abstract of all the cases, as well as of those in which the spleen has been totally or partially extirpated, after having been protruded through a wound in the abdominal wall. In the latter class, as well as in animals, the results are very satisfactory. The author thinks, therefore, that the bad results of operations for diseased spleen are chiefly due to the general condition (leucemia, malarial poisoning, etc.) of the patient, of which the splenic tumor was only one feature. Page 980 we notice one of these errors which occur a little too often in the book, and where the author says exactly the opposite of what he means. In speaking of the large cyst of the spleen which he operated, and the diagnosis of which was not settled beforehand, he says: "Would it have been *im*possible to lift it up and push it back into the depths of the hypochondrium? No, to be sure, it was so voluminous."

The next chapter gives a synopsis of the physiology and pathology of the pancreas. The diagnosis of its diseases is generally obscure, and their treatment exclusively medical.

The last chapter, treating of the tumors of the mesentery, is full of interest both for the pathologist and the operator. Besides the enlargement of the lymphatic glands, cysts, lipomas, fibroids, syphilomas, and cancers, forming tumors between the layers of the mesentery, are described, and operations taking until four hours put on record. The author has totally extirpated a large cyst in three cases; two of the patients died. He recommends, therefore, rather to take away what can be removed with comparative ease, and leave the rest to be expelled by suppuration. He has removed two lipomas, weighing respectively twenty-four and forty pounds. Both patients died. He has even removed a large cancerous tumor with the same result. He tries to justify such operations by the impossibility of a precise diagnosis, which sometimes exists even after the abdomen has been opened.

Few books not exclusively intended for the gynecologist are so rich in things interesting his specialty. Péan's great fame as a gastrotomist brings many rare cases under his observation, and his boldness and endurance as an operator give rise to operations in cases generally only seen on the dissecting table.

H. J. GARRIGUES.

MINOR SURGICAL GYNECOLOGY: A MANUAL OF UTERINE DIAGNOSIS AND THE LESSER TECHNICALITIES OF GYNECOLOGICAL PRACTICE, FOR THE USE OF THE ADVANCED STUDENT AND GENERAL PRACTITIONER. By PAUL F. MUNDÉ, M.D. With 300 illustrations. Wm. Wood & Co., pp. 381 (Vol. XII. of Wood's Library for 1880).

The book here presented is not intended for the experienced specialist. The preface expressly states that it is especially designed for the embryo gynecologist and for that very large and constantly increasing class of general practitioners who, at the present time, are giving a pretty close attention to female diseases. The time has gone by when all that is to be done in this particular line of practice must be turned over to the professed specialists; firstly, because their number is not commensurate with the wide field of their specialty; secondly, because in consequence of their demand for large fees numberless patients must be deprived of their services; and thirdly, because patients prefer to be treated by their family physician, when possible, for all their ills. The result of such a condition of things is that gynecology during the past few years has been a subject of general and somewhat close attention; and yet not so close, for want of illustrative cases and therefore practical observation, but that the general practitioner needs all aid and benefit to be derived alone from the more extensive learning, the wider and more critical observation, and above all the practical teaching of the specialist. For the general practitioner so established and situated that he has plenty of time to read, and a library well stocked with the works of those who have showered their gynecological rain upon us for the past twenty years or more, Dr. Mundé's book may not seem an absolute necessity; but even he cannot ignore a work whose pre-eminent claim is, that it embodies the results of an extensive practical experience in the diagnosis and treatment of uterine diseases by all the numerous minor measures which the ordinary text-books are compelled to omit or neglect for want of space.

It is this peculiar feature which makes it supply a deep and extensive need; and, as if clearly and unmistakably to define its spirit and object, the author adopts for his motto, placed, as the reader will see, at the head of the preface, a characteristic extract from the great specialist Emmet, which reads thus: "Success in the treatment of diseases of women lies wholly in attention to minute details."

We have no doubt that this work will be warmly greeted, and that its ready and extensive demand will be the tangible manner in which the profession will express to him their thanks. But while we would show our appreciation thus in a general way in regard to the book as a whole, yet it is but just that we should take it up somewhat in detail, and more particularly praise where special praise is due, and yet fearlessly criticise where we cannot agree.

The book opens with an introductory chapter on the General Considerations Influencing the Diagnosis and Treatment of Gynecological Cases. Then follows the subject of Gynecological Examinations. This is divided into Verbal Examinations and Local Examinations, and this latter again into Non-instrumental Examinations and Instrumental Examinations.

Beginning with Verbal Examination, the author touches upon an important fact which it would be well for both specialist and general practitioner to heed, when he makes the statement that the general practitioner in a verbal examination will probably limit his inquiry to general symptoms and treat upon general principles; while, on the other hand, the specialist in uterine disease is too prone to ignore the influences of the derangements of other organs on the sexual system, and to look upon the uterus and ovaries as the fountain-head of all other diseases in the female sex. Both parties are materially in the wrong. In illustration of this, he recites in a facetious manner two amusing blunders as having occurred in the ranks of our neuro-pathologists.

The instructions which he gives for conducting a verbal examination, with a view to getting at bottom facts, are, beyond question, comprehensive and crucial. He deals largely with the hystero-neuroses, and particularly with the many and distinct kinds of pain as having a diagnostic and even pathognomonic import, so that when the physician has ended his questioning, received and noted the answers, he, in a certain sense, may be said to have seen through his patient. It is unnecessary to say what a help this is to the subsequent physical examination.

Coming to Local Examinations, several pages are devoted to the different posturings necessary to that purpose. Each position which the patient is made to assume is shown to have its peculiar advantage for the object to be attained, and each is accompanied with a woodcut illustrative of the author's description. Many of these cuts, as also many throughout the book, meet the general practitioner's eye for the first time. They are faithful representations of the original when taken from other works, and many of them are original with the author. The explicit instructions given here as regards the genu-pectoral, and especially the Sims' position, I consider very opportune and important, for it seems next to impossible to get it into the heads even of many would-be gynecologists as to how the patient shall be placed in the proper Sims' position. And in this regard even our author, unintentionally no doubt, is not explicit on one important point. He says that in the left lateral position the right knee should slightly overlap the left, and here leaves the matter. Now, in order to be in the semi-prone or so-called Sims' position, it is absolutely necessary that *the right knee should touch the table*, especially if the latter be a level and not an inclined plane. If this fact be not observed, the upper portion of the body will only be twisted upon the lumbar spine as the right breast is made to almost touch the table, while the hips and lower abdomen remain in *statu quo.* The whole body must be made to assume the semi-prone position and not a part, for it is the benefit of abdominal gravity which we want. All remember that Sims' first position was the genu-pectoral, which he subsequently exchanged for the semi-prone; in both he sought the advantage of gravity for the accomplishment of his object.

Next come several pages upon Examination Couches, in which appear woodcuts of Hamilton's Gynapod, Wilson's Adjustable Chair, Goodell's, Chadwick's, and Francis' Adjustable Tables. They may be of advantage as serving to meet the selection of one who has a particular fancy or taste, but the sensible conclusion of the author meets our approval, when he says that an ordinary flat table of a proper size, and covered with a quilt and sheet, answers every purpose. Having concluded his remarks upon positions and couches as preliminaries, the author comes to his subject proper, and begins with Local Examinations without Instruments. He first takes up Inspection. The thoroughness and minuteness with which this topic is treated are certainly commendable. It is both interesting and somewhat surprising to learn from the facts given, how many things of vast importance to the practitioner can be taken in with the disciplined eye.

With a simple remark upon Auscultation and Percussion he takes up the subject of Palpation. The author's experience in abdominal palpation of pregnant women, as expressed in his recent articles in this JOURNAL on Diagnosis and Treatment of Obstetric Cases by External Manipulation, have well fitted him to discuss this subject. His present remarks on Palpation are only in a line with those articles, and although the object of search is different, yet the same laws laid down there and here are in perfect keeping with one another, and they truly furnish a most unerring guide.

We next come to the subject of Digital Examination—Vaginal, Rectal, and Vesical. Here we have full and explicit instructions as to the *how* of these examinations, as to just what we are expected to find by the finger alone, as to what it cannot find alone and unaided, and just what it may and will find when conjoined by other systematic palpations. Thus we have the vagino-abdominal, the recto-abdominal, the vesico-abdominal, the vesico-rectal, the vesico-vaginal, the recto-vaginal, all minutely described, and the diagnostic knowledge to be derived from such manipulations forcibly pointed out. It is not perhaps just *what* the author says upon those matters but *how* he says it, which makes his descriptions and conclusions valuable. This remark applies not alone to the subject under consideration, but to almost every theme in the book.

Next in order comes the subject of Examination by Means of Instruments. We would naturally expect in this field to find the author fully up to his characteristic thoroughness, and so he proves himself to be. With a brief word on the examinations of urethra and bladder by sound, catheter, endoscope, or speculum, in which he states all that is likely to be profitable, he comes to the examination of the vagina, cervix, and external os with the speculum. Beginning with the old Ferguson speculum, he gives us woodcuts of almost every one which has figured with any sort of note in gynecological practice. We almost wonder why he did not include the two figured in Dr. Wright's book on Uterine Disorders, one a bi-valve, the other a tri-valve, disinterred from the ruins of Pompeii, which must have been in use in A.D. 79—the period of that city's disaster. He appropriately divides specula into three groups, viz.: the cylindrical, the bi-, tri- and quadri-valve, and the duck-bill or Sims', which latter he regards as the perfect type. He accords to each its mead of praise for some peculiar advantage, but, all in all, he regards, as every sensible gynecologist must, Sims' speculum as pre-eminently superior. In regard to the *holding* of that speculum he, for some unaccountable reason, differs from its inventor. He would have the nurse or assistant grasp the outer bill of the speculum with the palm of the hand upwards, and in this manner make traction. Now this makes the point of traction at quite a distance from the point of resistance. The assistant therefore, as he is obliged to pull in a partially upward direction, must exert proportionately more force, while the liability for the vaginal bill of the speculum to slip out of the vagina must be infinitely greater. Sims' method brings the hand much nearer the point of resistance, and as it holds the intermediate handle between the bills with the hand in a more natural position and resting partly upon the sacrum or buttocks, the speculum must certainly be under much better control. Dr. Mundé must have been particularly favored with watchful and muscular assistants to lead him to prefer his own peculiar method.

Another point upon which we are forced to differ with our author is, the slight value which he seems to attach to specula which seek to do away with an assistant. He admits that the general practitioner or young specialist is but too frequently prevented from using the invaluable Sims speculum, because of the want of a proper nurse or assistant; and yet, because the specula which seek to substitute a mechanical assistant do not secure an "upward twist" for the purpose of illuminating the vagina, and do not lift up and out of the way the upper buttock, they are in his opinion of but little account. It is naturally expected that our veteran specialists would undervalue anything which endeavors to do away with what they have so long looked upon as indispensable in their own offices or practice. But necessity is the mother of invention, and we general practitioners, rather than put up with the nuisance of an assistant, whose only office is to hold a Sims' speculum and lift up a female's buttock, would willingly labor under the supposed disadvantages of a machine which, with a little patience and trouble, will accomplish (though more slowly, it is true) about all that the living assistant can do. Besides, as a question of fact, I am bound to say that, so far as my modification of Sims' speculum is concerned, it *does* give the "upward twist" or lateral movements so far as is desirable, and it *does* hold up the upper buttock most effectually. If specialists were compelled to resort, out of self-defence, to those specula as much as we general practitioners, they would soon realize their true value and almost indispensability. But setting aside these differences of views, the section on specula is exceedingly valuable for the different kinds presented, and the minute instructions furnished as to the manner of their use.

It may seem to some a work of supererogation that any extended remarks should be made upon the use of the probe and sound in an examination of the uterus. This, however, is not the view of our author. After describing and illustrating by woodcuts the various kinds in use, he points out, in extenso, the indications for their employment, the information to be derived therefrom, the dangers of their incautious handling, and finally, the particular way in which they should be introduced. He gives a terse section each to dilatation of the uterus, examination of the uterus with curette, artificial prolapsus of the uterus by tenacula and vulsella, all for diagnostic purposes; touches briefly upon examination of the rectum with the speculum, mensuration of the abdomen and pelvis, aspiration of abdominal and pelvic tumors, examination by reflected light, and winds up with a gynecological case schedule. In each he imparts most valuable information, and gives explicit directions in management. This ends the first part of his work. The second part is, if possible, much more important and interesting than the first. It is larger, and contains far more reading matter, and like the first is extensively illustrated. It is entitled "Minor Gynecological Manipulations and Applications." He begins with the bladder and urethra. His remarks on cystitis and its treatment are admirable. His views upon the troubles of the urethra and their management are replete with recent knowledge upon the subject, and his explicit instructions upon catheterization are excellent. In one respect alone does he seem to be deficient. While he speaks of the metallic, the hard-rubber, and the flexible catheter, meaning, doubtless, the gum-elastic catheter, he says nothing about that prince of all catheters, viz., the soft-rubber or velvet catheter. In my opinion; no other should be used, both as regards the comfort of the patient and the desirability of avoiding injuries to the urethra. Then, too, by having a small India-rubber tube, some three feet in length, sprung on to it, the urine can be conducted to a vessel in a chair by the bedside, whereby all exposure and annoyance of chambers or bowls in the bed are avoided.

The section devoted to applications of medicinal agents to the vagina is, in many respects, the most instructive, and as such, one of the most valuable in the whole book. It is lengthy, filled with details, leaving no facts unnoticed which could be of benefit, either as regards the selection of instruments, the medicinal agents to be employed, the exact method of employment, the pathological conditions to be met, or the results to be expected from particular treatment. The section on syringes, illustrated with cuts of the varieties approved by experience, and in connection with them the remarks on the proper use of the "cold, cool, tepid, warm, and hot injections" should receive the studied perusal of all who employ these agents. His suggestive hint, rather than belligerent argument upon the respective merits of the continuous and interrupted stream, amusingly reminds us of the old discussion between the "big enders" and the "little enders," or going back still farther beyond Swift's time, the contest between the "homoonsians" and "homoionsians." Two facts he considers very important: one that the centre hole of all vaginal syringes should be closed to avoid the danger of injecting fluid into the uterus, and the other that the patient should be in the supine position, with the hips well elevated, in order to get the full benefits of the injection. If we are to continue forever with vaginal syringes made after the pattern of the villainous Davidson's female point, Dr. Mundé's advice is undoubtedly correct; and if all patients can be made to assume the back position when taking the injection, the fluid may, with such points, or any other points, reach the cervix and vaginal cul-de-sac. But preach and teach as Dr. Emmet and our author may, the vast majority of patients will not comply with the bothersome preparations and the extremely careful but oftentimes useless precautions attending injections in the back position. I for one do not agree with this notion so strongly insisted on. If we can have a syringe which without danger can dash its stream against the cervix and into the cul-de-sac (it is the dash which we want), it matters little whether the patient be sitting down or lying upon the back. In fact, it is evident that in many instances the womb gets more of the influence of the hot stream in the sitting posture than in the supine one. With a loose, flaccid vagina, and a heavy, hyperplastic, anteverted womb, the supine position, with hips well elevated, causes a recession of the womb towards the abdominal cavity, whereby but a small portion of the cervix is exposed to the injection; and as to the anterior aspect of the womb, it gets none. Now we have syringes so constructed that we can thoroughly bathe the vaginal pocket, and thoroughly deluge the sagging or prolapsed womb while the patient is in the sitting posture, and that too without danger. They are those having holes in the very end of the vaginal point (just the place where Dr. Mundé would have no hole), *but they are protected by projecting flanges.* It is here that we need the holes, in order that the vaginal pocket and cervix may receive the deluging stream. Such a point I invented a few years ago, to be attached to a Davidson's, and I use these points still with all of my patients. A similarly constructed syringe appeared in *Braithwait's Retrospect,* one or two numbers back. Our author, however, takes a comprehensive view of the whole subject, and bases a strong argument upon the venous congestion of the parts while in the sitting position. Perhaps he is right; and on this point I will not pretend to dispute him.

Next, "Applications and Medicinal Agents to the Vagina and Cervix." Here he presents clearly and forcibly the practice with the galvano- and thermo-cauteries, the different forms of medicinal agents, fluid and solid, the pulverized, atomized, vaporized, and the unguent condition, those having caustic, styptic, astringent, alterative, hydragogue, emollient, narcotic, and other properties. All that he says on these things is exhaustively put, and happily to the point. There is not an indication but is clearly stated, not a danger but is warned against, not a method but is minutely described.

His treatment of the subject of the tamponade of the vagina is another of his happy efforts. What of any account can be said of the tampon? I instinctively ejaculated when I came to this theme; but by the time I had finished his chapter on this subject I found that he had much to offer, in which to the old there was a great deal of the new and instructive added. It is only necessary to enumerate the different stand-points from which he takes his views of this seemingly small matter, to see how it is really and honestly magnified into vital importance in the every-day practice of both the general practitioner and the specialist. First he considers the tampon in the light of a carrier for the application of medicinal agents to the cervix and vagina; second, as a means of retaining certain substances introduced into the uterus in their proper position, such as pledgets of cotton, laminaria and sponge-tents, stem pessaries, etc.; third, as a means of retaining the uterus itself in its normal or some other position which it is desired to give to it, as in displacements and as a means of preventing a relapse of a prolapsed ovary; fourth, as a mechanical support and stimulus to the pelvic vessels and an alterative to the pelvic tissues by means of the direct pressure it exerts on them; fifth, as a protective to the ulcerated, inflamed, or swollen cervix or vaginal walls to prevent friction and an increase of irritation; sixth, as a means of dilating or separating the vaginal walls, a substitute for a hard or distensible dilator, in constriction of the vaginal canal after operation for vaginal atresia or stenosis, in vaginismus and spasm of the levator ani muscle; seventh, as a hemostatic by its mechanical pressure and size; eighth, as an absorbent of vaginal and uterine discharges which are thus prevented from touching the external and sound parts, and as a protection of the sound parts from caustic substances applied to the uterus or the cervix. This simple enumeration, I say, shows the broad and comprehensive scope which he brings to the subject; but by far the most interesting feature of it are his contributions upon the different materials which should enter into the composition of the tampon in order to fulfil different indications; the different form or shape of the tampon to meet their respective purposes; the proper manner of their introduction that they may fulfil the end intended; the proper way of their removal, the length of time of their stay before removal; the cleansing and disinfection of the parts after their removal. All these items are described in such a simple and practical way, and yet in such a new light as to make Dr. Mundé's instruction upon the tamponade a most welcome assistance and guide.

Another most profitable section of the book is that which treats of "Applications to the Endometrium." If there be any one thing in gynecology which the merest tyro in medicine is supposed to know something of, it is applications to the os uteri. From the time of the early treatise of Henry Bennet down to the present, every practitioner who has had the courage to introduce a speculum into the vagina has somehow or other felt it a duty, as a necessary accompaniment of that procedure, to apply a piece of caustic to the os uteri, in most instances regardless of the condition found. As the literature of uterine applications advanced, and sporadical contributions appeared in the medical journals, he grew bolder in his adventures, explored more deeply into the to him unknown country, and may be said to have carried the war into the Africa of the womb. With him the all in all of treating almost every pathological condition of that organ was the thrusting up into its cavity some irritating medicament at least, and in some ingeniously contrived manner. The simple faculty of finding entrance to that organ, therefore, is pretty generally understood and hence very little that is new in this respect is left to any teacher; but while this is true, the infinitely more momentous teaching remains to be given and received as to the nature of the exact pathological conditions which call for treatment, and the exact therapeutical measures to be adopted to meet those conditions. Here it is where our gynecological instructors find their proper arena, and it is here that we find the discriminating, judicious, and differentiating landmarks of our author's extensive individual observation, and that gathered from the best authors. The information which he gives us in this respect seems most reliable, and in following it in our daily practice we may feel that we are fortified by both a rational and practical settlement of many hitherto unsolved problems. He points out the exact pathological conditions by certain unmistakable signs and symptoms, and then descants at length upon the therapeutical measures which both his own experience and that of others have proven by positive and definite results to be certain and satisfactory. With constant reference to the incipient gynecologist, he gives in profusion, with clear explanations as to their use, woodcuts of the mucus syringe, uterine electrodes, slide applicators, applicators without slides, canulated applicators, intrauterine syringes, applicator syringes, applicator sounds, instillation tubes, medicated tent-tubes, ointment syringes, ointment depositors, etc. The merits of these respective instruments are partly discussed and partly left to the judgment of those who may have varied tastes or fancies.

The next topic taken up is that of "Dilatation of the Uterus." This he divides into "dilatation without cutting instruments (bloodless dilatation)," and "dilatation with cutting instruments (bloody dilatation)." Under the first head he treats of *rapid dilatation* and *gradual dilatation;* the first by instruments, the second by tents. For the first he exhibits Peaslee's, Hanks', Sims', Wilson's, Ellinger's, Palmer's, Miller's, and Ball's uterine dilators, Hanks' and Vanderveer's cervical dilators, Molesworth's water dilator; Emmet's water dilator, etc. For the second he exhibits different sizes of sponge-tents, laminaria tents, tupelo tents, and explains how to introduce the tent and how to remove it. While describing these different agents for dilatation, he enters fully into the special advantages of each, and finally gives us a comprehensive synopsis of the conditions in which each is preferable. I give the synopsis in his own words.

1st. Graduated Sounds and Steel Diverging Dilators—to be used in dysmenorrhea and sterility depending on a constricted, flexed, rugous uterine canal when only moderate temporary dilatation is desired, or where the dilatation is to be frequently repeated; for intrauterine applications; in all cases where previous preparation is not desired.

2d. Dilatable Rubber Tubes—to be used in already moderately dilated uterine canals with soft dilatable walls (uterine discharges, fibroid tumors, abortion, rigid os during labor).

3d. Sponge-Tents—to be used where stimulation, changes of nutrition, serous discharges, abrasion of the endotrachelium are desired (areolar hyperplasia, subinvolution, atrophy of the uterus, endotrachelitis); for differential diagnosis between cancer and hyperplasia of cervix.

4th. Laminaria—to be used where the canal is very narrow or tortuous, or its walls very rigid (flexions, sterility, dysmenorrhea), as an aid to rapid dilatation by sounds, etc., only for occasional use.

5th. Tupelo—also where the canal is narrow or tortuous; further, where thorough, rapid, or repeated dilatation is required; after incision of cervical canal; where thorough dilatation is intended, and septic infection is specially to be guarded against; therefore, as a substitute for sponge-tents; in fact, whenever easy, thorough, and safe dilatation is desired; the best absorbent dilator.

The indications for dilatation of the uterus and the counter-indications and dangers by means of instruments and tents are forcibly impressed upon us. All in all, this part of the subject, the bloodless dilatation of the uterus, is in no other treatise that I am acquainted with, presented so tersely and yet so comprehensively, and therefore so happily.

Dilatation with Cutting Instruments or Bloody Dilatation is discussed in such a way as to bring out prominently the most salient points on the subject. After stating the many different ways in which the cervix may be divided, the extent to which it may be divided, etc., he pictures to us the different metrotomes, knives, and scissors most generally used for that purpose. He divides the varieties of the operation into superficial division of the cervix, free division of the intra-vaginal cervix, the discission of the cervical canal—by lateral division (Simpson's operation), antero-posterior division (Sims' operation), and superficial trachelotomy (Peaslee's operation). Diagrams of the womb and the lines of incision are given so as to exhibit the different operations in a very plain way. In regard to the superficial division of the os, I have never been satisfied with any of the methods hitherto proposed. In order to get even a passable result, the operation has to be followed up, as our author is careful to show, by instrumental stretching, caustic application, distention by plugs, and, in this way, close attention must be given for some two weeks or more. I have repeatedly done all this, and yet in a goodly percentage of cases I have more or less failed. Would not the desired object be accomplished more thoroughly and more quickly by causing an actual loss of substance by a circular excision of the os? To put this question to the test, I am now having under construction a punch whereby I propose to take out a circular piece of the cervical tissue from a quarter to a third of an inch in diameter. We cannot do this satisfactorily with the knife. The dangers, in the shape of hemorrhage, peritonitis, cellulitis, septicemia and death, of Simpson's and Sims' operations are presented in such a way as to show that they are intimately related to the after-treatment. Since the adoption and use of Sims' hard-rubber plug in place of the old cotton or other porous packing, such sequences are shown to be exceedingly rare. As regards the curative value and permanent benefit of these operations, our author tells us that we are yet in doubt: he tells us that statistics of successes as regards relief of dysmenorrhea, and chiefly as regards conception, have not been furnished by the operators. As to the antero-posterior operation of Sims, which always supposes a decided flexion, I must confess that I never could, either upon theoretical grounds or from practical results, be made to see the propriety of it. It is to be greatly regretted that Dr. Mundé does not go more deeply into this question. We may ask—Is there reason based upon theoretical grounds and practical results which would conclude that the operation accomplishes what it sets out to do? Individually I confess that I never could bring myself to see the propriety of it in its entirety. As to this slitting up of the long posterior lip sharply flexed upon the body, amputation of the cervix is far preferable. As for the division of a short posterior lip, there is no good result obtained, provided the external os be large enough and the cervical canal be open as far as the bend of the flexion. With such conditions you might as well slit open a boot leg in order to relieve a stricture at the instep. The obstruction being at the bend, both by a stenosis from the narrowing of the canal and the bend itself, we can plainly see that there is a propriety of passing a knife through that region for the simple purpose and as a necessary step to the introduction of a stem pessary or dilating sound. These are the active agents in straightening or enlarging a crooked uterine canal, and they do this by enlarging or straightening the canal as a whole. The dilatation and straightening of the canal by cutting alone, leaving the womb still in a flexed condition, looks very well in diagrams on paper, but in practice we are altogether unable to see it. Although our author does not come out decidedly in his discussions of the somewhat heroic operations of Sims, Simpson, Emmet, and others, yet we perceive an unmistakable, and we think very commendable, tendency in him to the simpler and more conservative ones. Thus speaking of the superficial incisions recommended by Peaslee, he says: "In view of the prevalent tendency to bold surgical measures, his advice should certainly be heeded and put to the test."

The subject next before us is the Curetting of the Uterine Cavity. The author at once and decidedly pronounces in its favor. In the face of many authorities who once pronounced it barbarous, he states, what is the truth, that "the curette has maintained its fame and increased in popularity"—that "one or the other form of curettes has become a necessary instrument to the gynecologist." He cites four varieties of curettes in present use, viz.: the dull copper wire loop of Thomas, the long subacute spoon of Récamier, the sharp cutting loop with flexible shank of Sims, and the sharp cutting spoon with stiff shank of Simon. For each a woodcut is given, and a glance takes in the instrument. Each is made to appear as having its own peculiar advantages, but for the great majority of cases Thomas' curette is recommended as being far safer and fully as efficient. He gives succinctly the diseased conditions for which the instrument is used, and points out the special indications for its use. He shows clearly that it is a most valuable aid in diagnosis; that the diseased conditions requiring its therapeutical employment are limited to three, viz.: 1st, chronic hyperplastic endometritis, or fungous degeneration of the uterine mucous membrane; 2d, retention of adherent placental villi after miscarriage; 3d, diffuse sarcoma of the mucosa of the body of the uterus. It is a well-known fact that all these pathological conditions are attended by more or less troublesome hemorrhages, which latter can only be effectually controlled by a thorough removal of the conditions. As compared with the curette, he shows that all other therapeutical measures, such as caustic and astringent applications, are exceedingly slow and uncertain, if not absolute failures.

The next section treats on "Local Depletion of the Uterus." In it the indications, counter-indications, and dangers are discussed, and the means of local depletion are briefly alluded to, such as the natural leech, Reese's artificial leech, Buttles' scarificator, and Thomas' dry cupper. It is short, but up to the times, and full of good hints. After saying a word upon "Injections of Medicinal Substances into the Tissue of the Cervix and Vagina, more in the spirit of using them as tentative measures than settled facts, he comes to the interesting chapter on "Reposition of the Displaced Uterus and Ovaries." He gives us several diagrams, illustrative of versions and flexions, and the different degrees of the same. He first shows how we may restore the womb to its proper place by the *finger*. To the beginner, and even to those long in practice, his clearly-defined manipulations will be a great help. He next shows us how to reposit a displaced uterus "by gravitation and *atmospheric pressure*." In order to do this, he brings to his aid two excellent woodcuts, after Campbell, in the knee-chest position. A glance at those woodcuts, coupled with Dr. Mundé's instructions on replacing a retroverted womb, will show even the dullest exactly how the thing is done. It will, therefore, not be desirable that we should dwell further upon the subject proper. But true to the instincts of my pugilistic nature, I have a word to say upon the atmospheric-pressure business. When I take up almost any gynecological work in the land that has appeared since Sims first "ballooned" the vagina, and see each author following in the lead without a murmur, much as a flock of sheep blindly follow an old bellwether when he jumps from his green pastures over the fence, and slumps into a mud-hole on the other side, I feel like exclaiming in the words of Cicero, when venting his tirade against Catiline: "Quousque tandem abutere nostra patientia . . ." O thou atmospheric slogan! Now what is the simple scientific fact in regard to the movements of all bodies in a homogeneous medium, such as water, atmosphere, etc., the pressure of which medium is the same and equal on all sides of the moving body? Why, it is that, so long as the medium remains undisturbed, the moving body moves or is moved by a force inherent in that body, or a force outside of it and the medium. If this be not so, then every movement of every body on the earth must be said to be caused by atmospheric pressure. When a moving body exerts a force or a force is exerted through it sufficient to displace the atmosphere in front of it, can it be said in any proper sense that the atmosphere behind it moves that body? Does not the atmospheric pressure in front of it just balance and therefore neutralize the atmospheric pressure behind it? When a man walks through the street, and by that movement tends to cause a vacuum in his rear, and the atmosphere rushes in to fill it, is he said to be moved by atmospheric pressure? When a bird flies through the air, and its rapid movement has a tendency to make a vacuum behind it, and the atmosphere is quick to fill it up, do we say that the bird is moved by atmospheric pressure? When a fish or a ship pushes through the water, and their movements tend to make a vacuum in their wake, do we say that their courses and their speed are caused by aqueous pressure? How nonsensical would such talk be! And yet the conditions surrounding a womb when the woman is in the knee-breast position, and air is let into the vagina to fill up a vacuum which the anteverting womb, under the moving force of gravity, makes, are precisely the same as those encompassing the walking man, the flying bird, the sailing ship, and the swimming fish. If one can be said to be moved by atmospheric pressure, then the same must be said in regard to all. But why isn't the vagina ballooned by atmospheric pressure when the woman is on her back, and the speculum is introduced into the vagina? Simply because the factors of position and gravity are absent, and it is only when *they* balloon the vagina, that the atmosphere is permitted to take a seat there. It is by position and gravitation alone that the abdominal viscera and the womb (acting, of course, as free bodies in an undisturbed atmosphere, which latter condition must be maintained by allowing the same amount of atmosphere a tergo as they force away a fronte) are carried forward and downward, and it is solely by this latter condition that the sacro-vaginal roof hangs like a vaulted canopy from connective tissue, ligaments, etc.

These remarks are indulged in, not so much to meet any decided stand made by our author upon the subject, for, in reality, he does but little more than allude to the *name*, but he does it in such a way as to convince us that he receives it as a fixed fact, and it is this assumed fact held by others as well as himself that I wish to combat.

The next and last subject of moment which Dr. Mundé takes up is that of pessaries. He gives us a long chapter of fifty-five pages upon it, and handles it in an excellent manner. In accordance with his expressed plan, he illustrates it with woodcuts of almost every pessary of any sort of note. He divides them into: 1, Abdominal; 2, Vaginal; 3, Vagino-abdominal; 4, Intrauterine. The paragraph under the head of "General Considerations Influencing the Selection, Application, and Management of Pessaries" is a mint of information, rational views, and practical common sense. For the special benefit of a class of wise savants in the profession, chiefly of the expectant and nature-worshipping kind, he says: "There is probably no therapeutic measure in gynecological practice which is so little understood and so thoroughly mismanaged as the use of pessaries." And again: "Properly selected, adjusted, and watched, vaginal pessaries are not only most useful, but actually indispensable instruments in the treatment of uterine displacements. It is their abuse, not their use, which has brought them into discredit with some physicians." These are statements which cannot be gainsayed. He divides the action of pessaries into three modes: 1st, by their size (balls and thick rings for prolapsus); 2d, by the direct support which they give to the uterus or vagina, without themselves attempting to restore the normal condition (as in anteversion, anteflexion, cystocele, and rectocele); 3d, by a peculiar lever-action, which tends to replace the displaced, then always retroverted, fundus uteri (all the ring pessaries constructed after the principle of Hodge's closed-lever pessary. These several actions are clearly discussed and explained.

He then enters upon the adjustment of pessaries, and starts with the position that "a cardinal rule in the employment of pessaries is to fit every pessary to every case." In order to do this properly, or, using his own words: "in estimating the variety, size, and shape of a pessary, the physician should ascertain, 1, the degree and nature of the displacement; 2, the mobility of the uterus; 3, the length and width of the vaginal canal; 4, the dilatability and contractility of its walls; 5, the depth and width of the posterior vaginal pouch when the uterus is replaced (this applies particularly to retro-displacements); 6, the weight, size, and density of the uterus; 7, the dimensions and length of the intra-vaginal portion of the cervix; 8, the presence or the absence and the seat of any tenderness in the parametrium or uterus; 9, the degree of laceration of the perineum, or of support afforded by that body if not torn; 10, the amount of vaginal secretion; 11, the tension of the anterior vaginal wall with the bladder; 12, the presence of a prolapsed ovary at the bottom of Douglas' pouch." All these important conditions he shows must be thoroughly understood before the physician can fit a pessary with any degree of certainty and satisfaction.

He then gives us "General Rules for the Introduction and Supervision of Pessaries." This part of the subject cannot be too urgently commended to the reader's attention. Even incidental quotations from or comments upon it would only mutilate the condensed and forcible teachings which it contains. Next comes the consideration of "Pessaries for Ante-displacements of the Uterus," in which numerous anteversion pessaries are pictured and described, together with explicit instructions for their introduction and removal. Following this, that of "Pessaries for Retro-displacements," accompanied by cuts of the many retroversion pessaries in common use. In regard to the latter, one feature appears worthy of special notice, and that is the particular steps to be taken in introducing into the vagina the retroversion lever-pessary. Dr. Mundé gives three woodcuts illustrative of these steps, which I have never witnessed in any other work, and they strike me as being of inestimable value to the beginner. Then follow "Pessaries for Cystocele, Rectocele, and Prolapsus Uteri," and then Vagino-Abdominal Supporters," with due warnings about the *dangers* of vaginal pessaries, and some comments on the *curative results* from pessaries in general, giving at last a résumé in the shape of twenty rules governing the Introduction and Supervision of Vaginal Pessaries, including the Vagino-abdominal. They are all that could be asked for—terse, clear, and practical. He ends the subject with a disquisition on "Intrauterine (Stem) Pessaries." His views in regard to their merits are of a conservative kind, between the extremes of those who would decry them as "an invention of the devil," on the one hand, and those who claim to have accomplished numberless cures with them, on the other. With a proper outlook against counter-indications and dangers, and by carefully following out certain precautionary measures, he thinks that good may certainly come from them. Instead of a total abandonment of a case where all other measures had failed to replace and correct a badly flexed womb, which was entailing an immense amount of suffering, he certainly would not hesitate to make use of the stem pessary. Apropos of this, let me say that I have a patient, a virgin, now 25 years of age, who came under my notice some four years ago. She was then suffering from menorrhagia, metrorrhagia, and anemia consequent thereon, and at last, the whole train of the hystero-neuroses which sooner or later follow such a state of things. Examination and local treatment were refused. Less than a year ago, she willingly submitted to an examination. I found a retro-latero-flexion. The probe passed 3¼ inches into the uterine cavity. I easily restored the womb to the anteverted position, and introduced a retroversion pessary. It did no good. Upon each examination, the womb was found to be retroflexed over the posterior bar of the pessary. I used many sizes and different curves, but all to no purpose. She had a short vaginal cervix, and the retrouterine pouch was shallow. Here was the secret. I did not hesitate to introduce one of my stem pessaries. She wore it some six weeks with great comfort, but complaining one day of pain, I took it out as a precautionary measure. I then tried the retroversion pessaries again. They did no good. She repeatedly asked for the stem pessary. I introduced it again, and she has now been wearing it constantly for some three months, with steadily returning health and with perfect relief of all her former pelvic sufferings, although the menstrual flow is not as yet reduced as much as it ought to be. Stem pessaries are good in their proper place, and when properly watched.

We cannot dismiss the subject of pessaries without calling attention to our author's experience with them as *curative agents.* This is a subject which, if I am not greatly mistaken, has not hitherto received decided attention; or if it has, and definite conclusions have been reached, they have been but sparingly dealt out to us. It is, therefore, refreshing to listen to the opinions of one who, from wide experience with these agents, has a right to speak, and who has derived from that experience more or less decided ideas.

He says: "The *curative results* from pessaries are not as encouraging as we could wish them to be. If applied at an early stage of the displacement, and especially at a time when the natural involution of the pelvic organs, uterus, ligaments and cellular tissue, favors a *restitutio ad integrum*, pessaries may after a certain time, several months or more, produce an entire cure of the displacement. This is particularly true of retroversions, prolapsus, rectocele, and cystocele. Later on it is the exception to find the relaxed ligaments restored to their normal tone and tension."

He has known of occasional exceptions, however, to the above general rule, and advises that we should "not despair of perfect recovery even in long-standing cases, if we do not neglect other means, such as astringents, hot or cold injections, and general tonics to strengthen the system." He regards the puerperal condition as a particularly favorable time to act upon the displaced uterus, but he warns us not to expect too much even then; that early rising in the lying-in condition and walking about favors the flexing of a flabby uterus over the posterior bar of the pessary, and the cure is thereby aborted. He thinks that long rest in bed, from two to three months or more, until subinvolution is entirely completed, will conduce to and possibly may in such instances achieve a cure.

But while speaking thus, somewhat doubtfully, of *cures*, he has no hesitation in deciding that we are still obliged to resort to pessaries as the best palliative measures within our reach.

These conservative views, I am quite confident, will receive the indorsement of all who have made a fair trial with and watched the effects of pessaries. Upon the subject of treatment by pessaries of *anteversions* and *anteflexions*, he entertains some views which are both independent and peculiar. We find him in many respects at antipodes with Dr. Thomas: while the latter takes the position that in no form of uterine disease has he accomplished so much good for his patient, and received so much satisfaction as in the treatment of anterior displacements, our author, on the other hand, thinks that he has never witnessed a *cure*, although acknowledging that great relief is afforded thereby. He thinks with Emmet that the good accomplished by anteversion pessaries is largely due to the elevation of the whole uterus. While Dr. Thomas claims that it requires an unusual amount of skill in selecting and properly adjusting pessaries for anterior displacements, and that they have to be far more closely watched than retroversion pessaries, in consequence of their greater liability to produce injuries to the soft parts; our author, on the other hand, finds no great difficulty in either selecting or fitting a pessary for an anteversion or an anteflexion, inasmuch as he is guided by the same rules, as to its anatomical adaptation, as those which govern him in the selection and adjustment of retroversion pessaries. He even thinks that they can be adapted to the vaginal walls more easily than retroversion pessaries. As regards the indications calling for anteversion and retroversion pessaries, he thinks that they are for the latter in a ratio of at least ten to one.

From my own limited experience with this kind of pessaries, I certainly must coincide with Dr. Thomas in regard to the dangers liable to attend them, and the watchfulness necessary to guard against these dangers; while at the same time I have yet to experience the extremely satisfactory results which he claims.

In my opinion, it is excedingly desirable that no anteversion pessary should be used unless it is capable of being easily introduced and removed by the patient herself, and I further believe that it should be removed almost every night, in order to give relief to the vagina, as well as for marital privileges. My own pessary has this capacity, and in consequence of it I avoid the injuries which I used to encounter when employing others.

With a word on "Artificial Impregnation," "Massage," and the "Hypodermic Injection of Ergot," Dr. Mundé ends his book.

I was not a little surprised to see nothing in it on lacerations of the cervix and perineum. These certainly ought to come within the scope of this book. I trust a future edition will contain chapters on these topics and various others (such as the treatment of urethral caruncles, of abscesses of the Bartholinian gland, amputation of the cervix, etc.), which properly belong to the domain of *minor* surgical gynecology.

The misplacement of Figs. 19 and 88, and the omission to rout out Fig. 22, as well as the placing of intestines in Douglas' pouch in the cut illustrating bimanual examination, are evidently mistakes of the printer and engraver.

In writing this review, I have fully realized the delicacy of the task of passing judgment upon a work written by the editor of this JOURNAL. It was necessary for me to avoid particularly all semblance even of partiality, with greater care than if the review had been for some other periodical. I have endeavored to discuss the various subjects in a fair, just, and impartial manner, and have not hesitated to censure where I differed from the author. I will close by expressing the belief that the work will prove a useful addition to our libraries, and an almost indispensable guide to the class of readers for whom it is intended.

W. H. STUDLEY.

KLINIK DER GEBURTSHÜLFLICHEN OPERATIONEN, von DR. HEINRICH FRITSCH, Prof. extraord. in der Universität Halle. Dritte Auflage, 1880, pp. 376. Halle: Max Niemeyer.

CLINIC OF OBSTETRIC OPERATIONS, by DR. HEINRICH FRITSCH, Prof. in Halle. Third revised edition, 1880, pp. 376, with 11 plates and 12 woodcuts.

A valuable text-book on obstetrical operations can only be written by one who is thoroughly acquainted with the literature and who has had the opportunity of forming his own opinions by a large experience. Without a sufficient experience of his own, the author may produce a good compilation, but his work has no claim whatever to furthering science. In this regard, Fritsch's work can defy the severest criticism. He is well acquainted with the best text-books on obstetrics, and has a large experience of his own. Being aware of the utter impossibility that an accoucheur can have sufficient information on every subject, he pays due regard to the experience of others where his own is deficient. This is an advantage which we miss in Barnes' and many other works. Fritsch's book will satisfy the student and not less the practitioner. The former will find it free from obscurity or ambiguity, and the latter can resort to it in every difficult case for reliable advice. The histories of cases appended to every chapter afford to the practitioner the opportunity of comparing his own procedure with that of the author. Without puzzling the reader with long arguments of pros and cons, Fritsch gives his own experience, backed by acknowledged authors. Although this work is superior to most of the text-books in many regards, it nevertheless contains a few views which are contrary to those of experienced accoucheurs, and can hardly be approved by many. This, however, cannot detract much from the value of the book. The appearance of a third edition shows the appreciation in which it is held, and renders lengthy comment on its advantages unnecessary. The arrangement of the topics is simple and satisfactory. The book is divided into thirteen chapters. Fritsch begins his preface by laying the greatest stress on antisepsis. Although its importance is acknowledged by all, it should always be remembered that the accoucheur is at the outset under the highest obligation to avoid all possibility of infection so far as is within his power.

In the first chapter, the author makes sensible remarks about the theory of the mechanism of parturition, about the topography of the gravid uterus, on head presentations, and the theory of labor-pains. The second and third chapters, containing the mechanism of head-presentations, forty pages long, could be shortened without omitting essential or important points. The fourth chapter, on forceps and rupture of the perineum, is carefully elaborated. The chief indications as to the necessity for forceps operation at the outlet the author sees in dangers to the mother or to the child. The dangers to the mother and child which may arise during labor are duly regarded. He admits that we are justified in applying the forceps only to relieve the patient of her pains, especially if she is very impatient and sensitive. The same opinion that the application of the forceps should not be applied wantonly is expressed by many experienced accoucheurs. As a prophylactic measure for avoiding rupture of the perineum, he advises to prevent the head from emerging too quickly through the vulva. In cases of forceps operations, he withdraws the forceps at the last moment and expresses the head in a similar way as was recommended by Ritgen. Rupture of the perineum he operates upon immediately after the delivery. In the fifth chapter, on the mechanism and treatment of pelvic presentations, the author recommends for certain cases the application of the blunt hook, when the child is yet living. The history of the case related will hardly convince anybody of its necessity, and we fully approve of Leishman's statement, p. 489, Amer. edit., 1880: "But the danger of wounding the soft parts of the child which it entails is now very properly held to be such a serious objection to its use that it has been entirely discarded in cases where there remains a possibility of the child being alive." The recommendation of the fillet is likewise open to objection. All contrivances for the extraction of the breech are dangerous to the child in difficult cases; when the extraction is easy, the finger suffices. On page 146 we find: "It is a matter of frequent observation that even in multiparis the orifice dilates with much difficulty, even if the portio vaginalis shows no pathological change; this depends upon the distribution of the blood during a pain." I am at a loss to discover what connection the circulation has with the slow dilatation of the os. It is true that the os often dilates very slowly in footling cases, but this depends upon mechanical principles. When the membranes are prematurely ruptured and the feet present at the inlet, a proper dilating agent is wanting; the feet and even the trunk slide through the orifice before it is completely dilated, while the head is retained. This is the rule in all cases of premature rupture of the membranes, if the inferior part of the child is extracted before the breech is born. We can be sure that we will have much fewer complications if we extract the inferior part of the child slowly. Therefore, I differ from the author's opinion expressed on page 333: "This method of slow extraction is based on theoretical grounds only." Nor can I approve of his procedure to extract the second child so soon in cases of twin pregnancy. According to my experience, the method of other accoucheurs, to wait a short time for the second child, gives the uterus a better chance to contract and to avoid hemorrhage. From what the author says on pages 127 and 189, it appears that he tries rotation before the breech appears at the vulva. Very often complications will ensue if we interfere with the rotation before the breech appears at the vulva. Page 128, the author says: "The posterior arm must always be delivered first." It would be better to say that we should try to deliver the posterior arm first, but if we find that it is on the side of the head and the delivery is difficult, we should not persist, but try to deliver the other. When one arm is delivered, the delivery of the other is very easy.

The author ascribes to Veit a method of extracting the after-coming head, which was devised and practised by Smellie (see first and second editions, 1756 and 1764, pages 310 and 312): "Introduce the fore or middle finger or both into the mouth of the fetus, by which means the chin will be pulled to the breast." Page 141, the author remarks: "We should limit the use of forceps in pelvic presentations with abnormal mechanism to cases in which the head is above the brim with the face forward; if the head is in the pelvis, the forceps should not be applied." This is a very striking statement. Even accoucheurs who still recommend the use of forceps in cases of after-coming head, reject its use when the head is high up in the pelvis, and they restrict it to cases in which the head is at the outlet. In Chapter VI., on Turning, the author insists upon grasping the foot which is first met with. This practice is in accordance with that of the large majority of accoucheurs. Barnes' opposite view is based upon theoretical suppositions, and is not confirmed by clinical experience. On page 267: "Whoever thinks that the after-coming head will pass through the pelvis more easily than the presenting, and to whomever this circumstance furnishes an indication, is inconsequent if he does not perform version from principle as soon as the conditions for version are present." According to my experience, I fully agree with Playfair (p. 340, Am. ed., 1880): "It is generally admitted that it may be possible, for the reasons just mentioned, to deliver a living child by turning through a pelvis contracted beyond the point which would permit the extraction of a living child by the forceps. That delivery is often possible by turning, after the forceps and the natural powers have failed, and when no other resource is left but the destruction of the child, must, I think, be admitted by all, for the records are full of such cases." In the lying-in hospital in Vienna, I often had the opportunity of convincing myself and others of the correctness of this statement. Nevertheless, it is frequently difficult to decide upon turning, because very often we cannot determine whether the presenting head can pass or not, especially in primiparæ. And no accoucheur would wantonly resort to turning when the presenting head can pass. When, however, we see that the presenting head cannot pass, the favorable conditions for turning are usually past. Therefore, we can only say that turning is indicated if in the preceding labors a difficult operation by the forceps or craniotomy at the superior strait was necessary. Page 184, the author objects to decapitation; he prefers evisceration, and eventually spondylotomy. There are cases in which decapitation, and others in which evisceration is indicated. When the presenting shoulder is high up at the superior strait, and the uterus firmly contracted, so that turning is impossible even under anesthesia, the decapitation is easily performed with the blunt hook; but when the shoulder is pressed down to the inferior strait, and the mechanism of spontaneous evolution is commencing, evisceration is preferable. The author's treatment of placenta previa by early delivery will not meet with general approval. "The orifice (in placenta previa) is exceedingly dilatable, so to speak." Now, most modern accoucheurs do not believe that the os is yielding in such cases, and therefore they reject early delivery. Barnes (*Lancet*, March, 1880) indorses Roper's statement (*Lancet*, January, 1880) that the cervix uteri undergoes a peculiar induration in cases of placenta previa, and he says further: "It is in the highest degree important to dispel the old pertinacious and pernicious error that in these cases the cervix is always dilated or dilatable. Dr. Roper's observation should help to dispel it." Schroeder, Barnes, Playfair, Leishman, and many others strongly argue against this practice. Early delivery was often proposed, but as often rejected. According to my experience in thirty cases of placenta previa which I have met with, I must disagree with the author's practice. The author's fourth case, page 320, demonstrates also the dangers of his procedure. In cases of hemorrhage caused by rents of the orifice, the author omits to mention the suture among the remedies, as it was first successfully applied by Hegar in a case in which all other means failed. The author lays too much stress upon the effect of injection of perchloride of iron in these cases. This injection is very useful in cases of hemorrhage from atony of the uterus, but in cases of hemorrhage caused by rents it is often without effect, as is also illustrated by the author's fourth case of placenta previa. (The uterus was firmly contracted, the hemorrhage continued notwithstanding the injection, and the mother died two hours after delivery.) Direct pressure is tiresome and inconvenient; the suture ought to be resorted to in desperate cases. The omission of illustrations may be considered by some as a slight drawback, but the description is everywhere so clear that illustrations can easily be missed. Although experienced accoucheurs will find recommended some procedures which they may not approve of, they will be satisfied that every chapter is elaborately treated. We can unhesitatingly affirm that the book is one of the best.

J. KUCHER.

A Practical Treatise on Tumors of the Mammary Gland: Embracing their Histology, Pathology, Diagnosis, and Treatment. By Samuel W. Gross, A.M., M.D., Surgeon to, and Lecturer on Clinical Surgery in the Jefferson Medical College Hospital and the Philadelphia Hospital, etc. Illustrated by twenty-nine Engravings. New York: D. Appleton & Co., 1880, pp. 246.

Six months have scarcely passed since Billroth gave to the medical world his able treatise on diseases of the breast (a review of which appeared in the July number of this Journal), and already a new volume on the same subject is sent forth to swell the rising tide of medical publications. This time a representative American surgeon and author claims recognition as a pathologist, as a surgeon, and as a critic. We may at once concede the pre-eminent justice of his claims to the second of these titles. And if a satisfactory acquaintance with mainly foreign literature, together with large personal experience, constitute a valid title to the expression of pathological opinions and critical views, Dr. Gross is also qualified to publicly appear in the first and last rôles. But some persons might be unwilling to admit this validity on such grounds. and it would be extremely difficult to prove those persons wrong.

This at once indicates our stand-point, viz., we cannot bestow unmitigated praise upon Dr. Gross' new treatise, though we heartily welcome its appearance as a partly successful effort in the right direction. This right direction consists of a growing tendency to harmonize known clinical facts with the more theoretical deductions of pathology. In the present condition of our knowledge, anything like finality or absoluteness in this respect must be justly considered as so much unqualified dogmatism. And unfortunately it must also be confessed that the author cannot entirely escape from the charge of such dogmatism. It would be hardly fair to compare, step by step, the chapters of Dr. Gross with the corresponding sections of Billroth's work. For, viewed in this light, the former's laudable pages would seem too much like a *post festum* production. The book of Billroth everywhere reveals the touch of the master-hand. Individual opinions are boldly advanced, but only after mature deliberation. Dr. Gross is sometimes hasty, occasionally the reader gets the impression that his paragraphs were compiled in hurried moments snatched from busy practice. Billroth was an observant pathologist almost as soon as he became a surgeon. With Dr. Gross it would seem that a thorough and able-minded physician had, after years of practical experience, superadded to other accomplishments a satisfactory knowledge of pathological facts. Billroth's pathology is all flesh and blood, that of Gross is largely superstructure. But we intended not to compare, and it remains for us to consider a few points in a more special manner, without, however, attempting any minuteness of detail.

The volume is "affectionately inscribed to Samuel D. Gross," and we learn at once the author's design "to reconcile the clinical features and the minute structure of tumors of the mammary gland." We have already intimated that this harmonizing forms the ideal goal of a rational science of medicine. But hampered by the imperfections of our present knowledge, all such attempts, while not altogether premature, are yet inevitably doomed to partially fail. Dr. Gross apparently wrote his preface before having studied Billroth's treatise, or he would not have attempted to "fill the void" of a "systematic and strictly accurate treatise" on tumors of the mammary gland. There can be no question but that the design of providing a "strictly accurate" treatise was conceived in a laudable spirit of conscious power, and yet it savors somewhat of presumptuousness to thus herald one's own productions. Manifestly no work dealing with various pathological theories and containing some "strictly personal" views can claim to be always strictly accurate.

On page 1, we learn that mammary neoplasms are "products of the same formative laws as the healthy structures." It strikes us that the definition of tumors as "products of laws" suggests some hastiness in composition, unless the phrase be explained as an example of surpassing originality on the part of the author. Gross prefers a "combined genetic and anatomical classification" of mammary tumors to the modern custom of arranging them according to the type of the tissue upon which they are formed. This pre-supposes a knowledge on his part of the ultimate pathogenesis of each and every tumor—a knowledge which the best pathologists, with becoming modesty, have admitted to be impossible to gain in all cases. The system of Gross has the merit of apparent simplicity, but when practical tests are applied to it, it will be found to be inadequate. Adenoma is a typical epithelial growth, carcinoma an atypical epithelial formation. Certainly nothing could appear to be more simple. But, according to Gross, typical is synonymous with benign, and atypical with malignant. How then are we to explain the following? A surgeon removes a breast containing a hard nodule, which gave clinical evidence of malignancy, and the microscopical examination shows a typical epithelial growth; or a chronic tumor apparently circumscribed and clinically benignant, turns out to be an atypical epithelial formation. No, whatever may happen in the future, at present the clinical terms benign and malignant are not interconvertible with the histological expressions typical and atypical epithelial formation. The mere existence of such a word as the compound semi-malignant, indicates the unsettled state of our knowledge on these points. We fully agree with Dr. Gross in believing that an early radical operation may permanently cure a cancer. But the mere clinician, discarding the reliable evidence of the microscope, may assert that the absence of recurrence is a true indication of non-malignancy, atypical epithelial formation to the contrary notwithstanding. On the other hand, the pathologist removes a bit of tissue from a doubtful neoplasm, the microscope detects only typical epithelial formations, the surgeon desists from an operation. Six months later, the woman dies from malignant disease. In order to avoid confusion, we must, therefore, either base our nomenclature on strictly anatomical appearances, or else, discarding the brilliant results of modern progressive pathology, return to the older system of classifying tumors according to clinical features. For as yet the two are incompatible in many respects.

Gross regards the "lacteal glands as the starting-point of adenoma and carcinoma, and the connective as the matricular tissue of the histoid or simple neoplasms." But although he devotes considerable attention to the remarkable views of Creighton in this connection, he does not even mention here the more recent and equally noteworthy opinions of Dr. Thin. This gentleman, it will be remembered, distinguished the ordinary scirrhus of pathologists, from what he called "duct-cancer," a growth believed to be identical with adenoma. Duct-cancer was said to develop from the columnar epithelium of the excretory channels, whereas ordinary cancer started from the cuboidal epithelium of the glandular acini. The important conclusion arrived at was that the chronic mammary tumor, or so-called adenoma, was frequently a true cancer (see Editorial in *Brit. Med. Journ.*, March 20th, 1880, and Lond. *Lancet*, Vol. II., 1879, and Vol. I., 1880). This is all the more surprising as Gross was evidently acquainted with the studies of Thin, for in the chapter on etiology he distinctly refers to them, doubting the correctness and acceptability of his inferences, but yet not refuting them.

The chapter on the anatomy of the connective tissue neoplasms is one of the best in the book. But in speaking of the histogenetic origin of cysts (page 44), Gross makes use of the somewhat mysterious phrase that "the transformation of the elementary structure results in softening or extravasation, instead of autogenous, cysts." This chapter also gives indication of a habit on the part of the author which may be considered a peculiar, if not a reprehensible one. We refer to the frequent citation of the views of more or less obsolete schools of pathology, and then contrasting with these views the dissenting personal convictions of the author. Thus on page 45 we find "upward of thirty years ago, Brodie stated," etc.: "Paget, five years later taught," etc.; and then "I have been unable to trace such a transformation," etc. Gross states that fibromata involving the entire mamma are usually spoken of as "general hypertrophy." This is an error; general hypertrophy is ordinarily used synonymously with true adenoma.

Chapter VI., on Sarcoma, contains a very satisfactory account of this interesting variety of neoplasms. Gross distinguishes three principal varieties of these growths: round-celled sarcoma, spindle-celled sarcoma, and giant-celled sarcoma. This division, it will be seen, is strictly morphological, and therefore simple, accurate, and satisfactory.

The next chapter, which treats of myxoma, is short and good. The woodcut, however, is a wretchedly poor attempt to illustrate the characteristic and beautiful appearance of microscopical sections of such tumors.

In the chapter on adenoma we are glad to find Gross make the unhesitating statement that genuine examples of this variety of neoplasm are quite rare.

The chapter on carcinoma is, of course, the longest in the book. In regard to its histogenesis Gross adopts Waldeyer's view of the exclusively epithelial origin of this neoplasm. He adds, however, that its mode of extension or dissemination is along the perivascular lymph-sheaths, and not along the lymphatic channels. Waldeyer, Langhans, Recklinghausen, and a host of other competent observers have repeatedly described such extension along lymph-vessels, so that the weight of authority is decidedly against the interpretation offered by Gross. The varieties of cancer which he distinguishes very nearly correspond to those given by Billroth, with this exception, that Gross recognizes a separate division in pigmented cancer. This chapter also contains some interesting statistical data, partly compiled and partly original. Gross reveals a decided predilection in favor of foreign sources of information, a preference which is, perhaps, not altogether well founded, as the average American observer's records are fully as good as those of the average foreigner. But as this may be a mere matter of taste, we have no right to accuse the author of lacking patriotism in his science. This section of the book also contains the best woodcuts; in fact, most of the others are rather poor. It is a pity that American productions cannot attempt to compete, in this respect, with some of the elegant publications of France, Germany, and England. However, such poorly executed cuts argue rather parsimony on the part of our publishers than the lack of capability or appreciation on the part of American writers.

Cysts are divided by Gross into retention cysts, and hydatid cysts. The former are again subdivided into simple cysts and galactoceles. Such a classification of cysts according to their origin is as simple as it is good.

The chapter on the diagnosis of mammary tumors is in all respects a practical one. The tables which it contains make reference to the main features of differential diagnosis a comparatively easy matter. For this reason it will probably be more frequently consulted by the practising surgeon than any other section in the work.

The treatment of mammary tumors is discussed in the last chapter but one. As might be expected from the just eminence of Gross as a surgeon, early and radical operations are strongly urged. On page 227 we find a piece of good advice, relative to those cases where "the axillary glands constitute a densely hard and knobby tumor." Gross states that, in cases of this description, "it is far wiser to attack the axillary tumor before the primary growth is interfered with, since, if the former cannot be entirely removed, in consequence of its intimate connection with the great vessels and nerves, and its extension under the clavicle into the neck, it will be useless to proceed with the operation." The author has never resorted to antiseptic precautions in amputating the mammary gland, and he adds that he has no reason to regret the employment of simple dressings.

The last chapter contains brief mention of the rare occurrence of neoplasms in the male mammary gland. In closing, we feel inclined to thank Dr. Gross for the painstaking labor evidently bestowed upon the preparation of many sections of this volume. The book, as has been pointed out, is not devoid of imperfections, and especially when compared with Billroth's treatise will be found rather deficient. But of works in the English language it certainly leads the van. The almost uniform excellence of Dr. Gross' style is too well known to require special comment.

E. C. WENDT.

DES FIBROMES UTERINS AU POINT DE VUE DE LA GROSSESSE ET DE L'ACCOUCHEMENT. Thèse presentée au concours pour l'agrégation et soutenue à la Faculté de Médecine de Paris. Par le DR. R. LEFOUR. Avec 9 gravures sur bois, etc. Paris: O. Doin, 8vo, pp. 336, 1880.

FIBROMA OF THE UTERUS IN RELATION TO PREGNANCY AND CHILD-BIRTH. By DR. R. LEFOUR.

As the author very properly states in his preface, the subject of the present thesis is not a very new one. On the other hand, it cannot be justly claimed that it is a very ancient one, and certainly it does not yet belong to the class of trite and hackneyed themes. There is no lack of interesting material, both as regards the records of pathologists and the publications of obstetricians, from which a comprehensive treatise might be constructed. Of course, such a work would not contain much original thought, or give evidence of extended personal experience. Nevertheless it might furnish reliable information on the practical issues involved in the questions chosen for discussion, and it might give a very complete and satisfactory résumé of our present knowledge of the subject. Such a book has indeed been written by Dr. Lefour, and if we find no occasion to admire any originality which its author may possess, we can at least commend his diligence in collecting from widely scattered sources the information which he has harmoniously presented in its pages.

Dr. Lefour calls his work a study, and a study it certainly is, but one in which the student has become an impartial judge and considerate critic, as well as a writer of pleasing style and concise expression. The greater part of the observations forming the basis of this treatise are condensed in convenient tables, of which we will speak later.

A limited number of other cases are presented more in detail, either on account of their intrinsic importance or because they were hitherto unpublished and tended to confirm certain of the author's views, which were still topics of discussion.

The first chapter is historical; first chapters generally are. Not that the profession is burning with anxiety to know what Alzaharavias and Abu-Ali, and some of his immediate predecessors, friends, or even successors, did, thought, and felt about medical matters, but because it conveys a pleasing illusion of one's profound knowledge of antiquity to exhume such medical mummies with heart-rending names, and to display them in all their polysyllabic magnificence in the pages of one's modern books. Perhaps we are not sufficiently imbued with the spirit of awful reverence in the presence of these antiquated gentlemen, yet we cannot repress the unhallowed confession that we don't care about Messrs. Abul-Kasem, Al-Hussain & Co., and their medical convictions. The second of the three historical periods recognized by the author, contains much of interest to the student and scholar. It extends down to 1868–9, when the Société de Chirurgie took up the discussion of the subject—a discussion participated in by Tarnier, Depaul, Guéniot, Blot, Trélat, and other eminent French surgeons. But we cannot stop to a detailed examination of these historical references.

In Chapter II. the definition and synonyms of fibroids of the uterus are given, and the frequency of these neoplasms indicated by a long quotation from C. West. Then follows a very good chapter on the pathological anatomy and physiology of the various tumors belonging to this group. This portion of the work is also embellished by six well-executed woodcuts, borrowed from the manual of De Sinéty. Dr. Lefour adds to the two divisions of the subject as recognized by Demarquay and Saint-Vel, viz., physiological and the pathological existence of fibroids, a third section headed "their extra-physiological occurrence." This is justifiable and proper so soon as we regard life after the menopause, as extra-physiological in this sense. Moreover, the fact is well known that fibroids appear oftener, or at least are discovered oftener during and after, than before, the period of the cessation of menstruation, so that this in itself would suffice to make the author's distinction of a third division appear a natural one. We find in this portion of the volume several hitherto unpublished observations illustrating very perfectly some of the points emphasized by Lefour.

Etiology and pathogeny forms the title of Chapter IV., and in it the author rather briefly explains what is at present known respecting the causation and mode of formation of uterine fibroids. He has no personal opinion to offer in this connection, nor does he indicate his acceptance of any one of the conflicting views of different authors.

The influence of fibroids on conception is considered in the next chapter. Lefour shares the belief of those authors who regard the sterility, often found associated with uterine fibrous tumors, as the result of their presence, and not vice versa, the neoplasms as one of the effects of previously existing sterility. It will be remembered that Cruveilhier, Virchow, Scanzoni, Spiegelberg, and others maintained that the uterine inactivity concomitant with the sterile condition tended to produce fibroids. The author conclusively shows, by the aid of reliable statistics, that the absence of child-bearing is not the cause of these neoplasms, for they are far more frequent in married than in unmarried women. All the different ways in which the presence of fibroids may counteract, both directly and indirectly, the accomplishment of impregnation are fully set forth, without, however, making the chapter either tedious or too long.

The next chapter, in natural sequence, takes up the consideration of fibroids as related to pregnancy. Allusion is made to the comparatively frequent occurrence of extrauterine pregnancies in conjunction with these tumors, and then the author shows how their presence may lead and has led to faulty placental insertion or placenta previa. Abortions may undoubtedly be caused by the existence of fibroids, but Lefour finds that their deleterious influence in this respect is less pronounced than one might be inclined à priori to suppose. Several interesting cases are cited in this connection, and the author is led to observe that sometimes pregnancy and accouchement may take place and proceed normally in spite of the presence of multiple fibroids. Of course, the seat of the tumors materially influences these things, submucous neoplasms being less innoccuous than subserous.

Then comes a chapter on the influence of uterine fibroids on parturition. The bad effects which the presence of these growths may have on the progress and termination of labor are considered under the following three heads: 1, Anomalies produced in the pelvi-genital canal; 2, anomalies of position and presentation, and 3, anomalies in the force of expulsion. This is followed by an examination of the mechanism of natural spontaneous delivery in cases of fibroma uteri, to which is added a section on complicated delivery. Lefour concludes, from the study of many observations, that often the last stage of childbirth presents no noteworthy peculiarity which could be ascribed to the presence of fibroids. He adds, however, that in numerous instances marked effects are observable, so that the matter is really left just as undecided as the author found it. And perhaps this indecision is in the nature of a subject which depends upon so many factors rather individual than general, as the mode of childbirth. Nevertheless, it is well for the accoucheur to be on the alert for complications in all cases in which fibroids have been detected, either during pregnancy or in labor.

Chapter VIII. is on symptoms and diagnosis. Only four pages are devoted to symptomatology, but the subject is again taken up in the section on complications. The fact is brought out that in certain rare instances fibroids may exist and not be suspected either during pregnancy or confinement. Diagnosis is considered under three heads: 1, Diagnosis of pregnancy with uterine fibroma. 2, Differential diagnosis of fibroids and the different conditions which may simulate them during pregnancy and childbirth, and 3, Diagnosis of the tumor by itself. The author goes over the whole ground in a very careful and thorough manner, illustrating each separate section by typical cases, most of which have not been before published. This portion of the work is very satisfactory, and from its practical arrangement makes reference very easy. It also shows the author's acquaintance with the French, English, American, and German literature of the subject.

A table copied from Nauss is appended to this part, in order to furnish statistical evidence respecting the relative frequency of diagnosis in the different periods of the puerperal condition. The majority of fibroids were discovered, according to this table, during labor, and not, as one might expect, during pregnancy.

The complications which may be caused by the presence of fibroids are next discussed. Again the subject is considered under three heads: 1, Complications during pregnancy; 2, those during labor, and 3, those during and after delivery.

This is followed by a short chapter on prognosis, setting forth the gravity of the subject, and then comes the section devoted to treatment. The author quotes, under the head of therapy before conception, the opinions of Blandin and an expression of Depaul, both to the effect that women with uterine fibroids should not marry or become pregnant. Treatment during pregnancy should be the removal of all such tumors as are accessible to the surgeon's knife, but any operation of the gravity of gastrotomy is, according to Lefour, to be avoided. Other remedial measures should have for their object the prevention of abortion, the author being of opinion that, as a rule, even the induction of premature labor is unjustifiable. He takes cognizance of the contrary opinions of some authors, but still believes that the weight of evidence speaks in favor of his view of the matter. It seems to us that the statistical data are as yet too meagre and in some respects too equivocal to allow of definite inferences to be drawn from such a source. Besides we have great faith in the progressive improvement of abdominal surgery, and the time will surely come when it will be safer for most patients to incur the risks of an operation than to take the chances of recovery from a confinement complicated by the presence of fibroids. Treatment during labor is then considered, and the various measures to be adopted under different circumstances are fully set forth. Of course, each individual case will present special features, and these must determine the particular kind of professional aid to be given. As a rule, however, Lefour states that the tumor should be attacked before the child, and the child in preference to the mother. Statistics show that the application of the forceps gave better results than version, but here again, owing to the complexity of the problems involved, a general conclusion can hardly be drawn. Porro's operation invariably proved fatal—a fact which the author explains by stating that the pedicle in cases of fibroid is always very broad and voluminous. In the few instances which have been hitherto reported, this was doubtless the case, but that it should be so always we are unwilling to admit.

Chapter XII., the last one in the book, deals with the influences of fibromata on the course of confinements. Atrophy and absorption of these tumors after fatty degeneration seem to be no uncommon terminations after delivery, so that for once pregnancy may almost be classed with the remedial agents. But neoplasms containing much connective tissue are not apt to undergo this retrograde metamorphosis, and it is only when the tumor was a pure myoma that its complete physiological disappearance may be observed to take place simultaneously with uterine involution. The complications which may arise in the period after childbirth, and which must be regarded as due to the presence of fibroids, are illustrated by the description of typical cases, and then the treatment of women afflicted with those growths during this period is given. This is devoid of novelty or importance, the same general principles, both medical and surgical, that guide the practitioner elsewhere, must govern his actions here.

The work closes with comprehensive tables of published cases, giving evidence of the author's diligence and industry, as well as showing his practical mind by the manner in which the subject is arranged. These tables form a really valuable contribution to the literature of the subject, as they show at a glance the essential points of each case, so far as they could be ascertained. How incompletely some cases were reported is made evident by the large number of interrogation marks in place of information, under some headings. Two well executed lithographic plates and a bibliographical index complete the volume. It appears from the outline we have attempted to give of Lefour's treatise that, if it is not a mine rich in brilliant thought or original observation, it is at least a valuable repository containing the work of others, carefully arranged and systematically presented. The thesis shows that its author possesses qualifications, certainly equal if not superior to those of the average aspirant to a French professorship of medicine.

E. C. WENDT.

ABSTRACTS.

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OBSTETRICS.

1. P. Mueller (Berne): On Frequency and Etiology of the Uniformly Contracted Pelvis (*Arch. f. Gynäk.*, XVI., 2).—A thorough knowledge of the contracted pelvis has become of absolute necessity to the modern obstetrician. Our early experience goes to show that a great many irregularities in parturition, which formerly were attributed to any other cause, are depending on some form of contraction of pelvis. This fact is fully appreciated by the practitioner only who has made it a habit to carefully and systematically ascertain the length of the different pelvic diameters. Indeed, if we take into consideration all the deliveries a woman has had, if we do not let pass by, unnoticed, minor deviations from the normal process of parturition, if we also pay attention to the circumstances capable of compensating moderate contraction (as small size of fetus, compressibility of skull), we shall not refute as too high the ratio of contracted pelvis given by Spiegelberg and Schwarz, namely, 14% and 20% respectively. It would be of great profit to science if systematical measuring of the principal pelvic diameters should be adopted by all leading obstetricians through all countries. For by such joined labors we might get a full knowledge of the pelvis of different races and people, also of the relative frequency of the different forms of contraction in different countries.

M. has based his researches on 1,177 cases observed in Berne, Switzerland. Of these 258 were "suspicious" (beanstandet) = 22%, 188 were undoubtedly contracted = 16%.

Of these were :	1. Flat pelvis,	95	8%
	a. Simply flat,	86	
	b. Rhachitic,	9	
	2. Generally contracted,	88	7%
	a. Generally equally contracted,	71	
	b. " flat,	4	
	c. " rhachitic,	12	
	3. Osteomalacic,	2	
	4. Obliquely contracted,	2	
	5. Funnel-shaped,	4	

Conclusions: 1. In the canton of Berne, Switzerland, equally contracted pelves are more frequently met with than elsewhere.

2. Rhachitism is the chief cause in producing this form of pelvic contraction.

3. In a good many cases, this form of pelvic contraction is associated with cretinism.

4. Fortunately in most cases the fetus is small enough to considerably lessen the dangers otherwise incident to this pelvic deformity. H. B.

2. F. Ganguillet (Berne): On the Action of Sclerotinic Acid on the Puerperal Uterus (*Arch. f. Gynäk.*, XVI., 2).—Sclerotinic acid (a principle extracted from Secale cornut.) has been set forth by Nikitin, some time ago, as a sure and reliable substitute for the uncertain and unstable ergot. Having tried the preparation at the university clinics at Berne, G. gives the following as the result of his experiments:

1. After a dose of sclerotinic acid of upward of 1.0 gram, uterine contractions seemed to become more frequent.
2. Yet more marked was the influence on the duration of the contractions: after 3.0–4.0 gram doses they lasted $1\frac{1}{2}$ longer than before.
3. The action of the drug began to manifest itself one hour after its administration
4. In spite of enlarging the doses up to 5.0, no other than the mentioned results were obtained.
5. Besides the uterus no other organ was affected; pulse, temperature, etc.. remained unchanged.

The preparation used was a powder (acid. sclerot. and natr. sclerot.), mixed with white sugar. H. B.

3. C. C. Th. Litzmann (Kiel): Contribution to the Origin of Spinal Paralysis in newborn Children (*Arch. f. Gynäk.*, XVI., 1).—L. was called upon to assist, in her tenth delivery, a lady, æt. 38, with an equally contracted pelvis, conjugate diameter 9 cm. Labor set in at term on February 10th. On February 11th, 4 A.M., os fully dilated, amniotic sac protruding through the vulva; foot presentation. Rupture of bag. No uterine contractions, fetal pulse becoming slow. Extraction of a full-grown living female fetus. Child soon became restless, cried; both legs were found to be paralyzed. While the child soon recovered otherwise, the inactivity of the muscles persisted. Finally slow improvement under electric treatment. L. attributes the cause of paralysis, in his case, to an extravasation of blood into the spinal canal. This hemorrhage occurred during labor; not in consequence of undue traction on the vertebræ, but principally of some trouble in circulation, caused by constriction of the cord around chest and neck. The slow improvement coincides with the slow absorbing process of the extravasated blood. How frequent hemorrhages into the spinal canal are, without any lesion of the vertebral column, is shown by the following statistics. In 161 post-mortems, 81 times the vertebral canal was opened, when 33 times more or less profuse hemorrhages were found. Of these, 23 fetuses were full-grown, 10 were immature, 13 were born dead or in a dying condition, only 2 were delivered by forceps, 20 were born alive, all in head pres., only 4 by forceps, 5 of these died in first 24 hours, 12 died between 1–2 days, 3 after 14th day. Only in one case paralysis of the lower extremity was present, yet it must be remembered how easily such an affection is overlooked if life lasts but a few hours or a few days.

In concluding, L. cites the experiences of the English orthopedist Little, who, after careful examination of 47 cases of spastic rigidity, arrived at the same conclusion as to the origin of these disturbances. He also dates their origin back to parturition, when the central nervous organs were injured, effusion of blood taking place, not so much from direct mechanical cause as from some trouble in the fetal circulation.

H. B.

4. F. Ahlfeld (Leipzig): On the Mode in which Face Presentations are Produced (*Arch. f. Gynäk.*, XVI., 1).—The majority of obstetricians pronounce the contracted pelvis the chief cause of face presentations. Yet face and brow presentations are most frequently met with in premature fetuses, a fact capable of showing of what little influence contraction of the pelvis must be in producing them. A. mentions the following circumstances as mainly favoring production of face presentation :

1. Diminution of the action of the reflectory centres, as in asphyctic and prematurely born fetuses—or rather destruction of the action of the nervous system, as in macerated or recently dead fetuses.
2. Enlargement of the circumference of the thorax and abdomen in macerated fetuses.
3. Hemicephali have very frequently been born in face presentation.
4. Also twins.
5. Dolichocephalia favors face presentation.
6. Also prolapsus of one arm.
7. Constrictions of the cord around the neck.

As regards the stage at which the vicious presentation begins, A. gives it as his opinion that there must be some disposition to it in the posture of the child before labor sets in. H. B.

5. **Braun : On Tarnier's Forceps.**—PROF. G. BRAUN, of Vienna (*Wien. Med. Woch.*, June 12th and 19th, 1880), gives his experience with the new forceps, based on a study of twelve cases, in which the instrument was employed. He concludes therefrom, that while it must be admitted that traction with Tarnier's forceps need not be quite so forcible as with the ordinary instruments, still the maternal parts are by no means less exposed to the risk of laceration or contusion. The danger to the perineum is likewise not materially lessened by a substitution of the Tarnier for the ordinary forceps, a view which is shared by Kucher (*Wien. Med. Presse*, Nov. 20th, 1879).

Still, especially in cases of high forceps operations, the Tarnier forceps possesses decided advantages, but great experience and constant attention are necessary for its successful manipulation. Braun thinks that the man of limited experience will fail to "find his way" with Tarnier's instrument.

On the other hand, the forceps of Tarnier is not free from certain disadvantages. Its successful introduction and application are certainly attended with more difficulty than is the case with the common forceps. It is also rendered somewhat clumsy from the fact that two traction rods must be held by one hand. The right blade may cause mischief during the attempt to apply it, in cases of contracted orifice. Again, when the largest circumference of the fetal head has been secured, the power of the instrument is such, that the head *must* follow, and traction may prove the occasion of fracture of the fetal cranium, or severe laceration of the maternal parts. With the ordinary forceps even the beginner is not apt to push his efforts to this dangerous degree, for there imminent peril is more readily perceived, and thus avoided by the substitution, when necessary, of craniotomy.

In his final judgment of the Tarnier forceps, Braun recommends it to the experienced surgeon in cases of high operations, but dissuades the beginner and less experienced practitioner from its employment.

E. C. W.

6. Lize: Obstacles which may cause Fetal Retention after Passage of the Head through the Vulvar Orifice.—Dr. Lizé (*Annales de Gynécol.*, April, 1880) publishes a series of cases, illustrating "the various obstacles which may cause the fetus to be retained, after its head alone, or its head followed by a part of the trunk, has passed the vulvar orifice, during delivery." Recapitulating the obstacles of his second group of cases (the first group was published in a previous number of the *Annales*) we find: a hydatid tumor situated in the recto-vaginal wall, a sacciform development of the posterior uterine wall, obstruction of the internal os uteri implicating the vagina; insertion of the placenta into the anterior uterine wall, with horizontal decubitus of the parturient woman owing to a fracture of her leg; a shortening of the superior strait, shortening of the inferior strait; natural shortness of the umbilical cord, a liquid tumor situated on the fetal neck; a partial tympanites and general emphysema of the fetus; ascites, and ascites complicated with hypertrophy of the spleen; a serous cyst of the abdominal wall, a hepatic tumor, hypertrophy of the kidneys, an enormous distention of the ureters, and a distention of the ureters superadded to a vesical dilatation: retention of urine and an enormous liquid (?) tumor of the pubic region. Finally, various tumors of the lumbar, coccygeal, or perineal regions.

Of the thirty cases comprising this second series, twenty-three resulted in death of the child and only one in the death of the mother. The somewhat lengthy paper concludes with the remarks, that "If, after having passed the vulvar orifice, the fetal head is arrested in its onward movement, the obstacle impeding its passage can, in most cases, be overcome without damage to the mother. This statement holds good whether the impediment be near the vulva or at a great distance from it. The operator should, as a rule, attack the child, since its life is commonly more or less jeopardized." E. C. W.

GYNECOLOGY.

7. M. Sanger (Leipzig): Primary Sarcoma of the Vagina, with Secondary Invasion into the Bladder, Broad Ligaments, and Pelvic Glands in a Child Three Years Old (*Arch. f. Gynäk.*, XVI., 1).—The growth was first noticed one year after birth. A fleshy tumor of the size of a berry was hanging out from the vulva. Ligature. Relapse after some four months. At different intervals six times ligatures, the growth always recurring and advancing into the adjoining parts. Fetid leucorrhea, incontinentia urinæ, straining, etc. Finally the child died under symptoms of cancerous cachexia. After microscopical examination S. calls the tumor: sarcoma medullare nodosum et polyposum, partim hydropicum. He thinks that it originated from the papillæ columnæ rugarum anterior. Perhaps a rape, which had been perpetrated on the child by an old man of 60, caused the rapid growth of the tumor. H. B.

8. E. Schwarz (Halle): On Intrauterine Applications, etc. (*Arch. f. Gynäk.*, Bd. XVI., 2).—S. claims that intrauterine applications should never be preceded by dilatation of the os, this being not only a rather tedious, but sometimes even a dangerous procedure. The cases requiring intrauterine applications are such where a more or less copious and offensive discharge is present. Now, before entering the womb with the curette or the brush, S. introduces a Bozeman catheter and thoroughly irrigates the cavity with a 2½% solution of carbolic acid. After curetting, second irrigation. Finally careful injection of 1 ccm. of (according to the requirements of the case) tinct. iodi. or pure perchloride of iron. It may be well observed that S. lays most stress on disinfecting the uterine cavity before using the caustic or curette. H. B.

9. Bruntzel: On the Success of the Antiseptic Method as Applied to Laparotomy.—DR. BRUNTZEL (*Reprint from the "Breslauer ärzt. Zeitschr.*," Nos. 8 and 9, 1880), in a recent lecture, warmly advocates strict "Listerism" in connection with all laparotomies. His report embraces 25 cases, of which 19 were ovariotomies, 4 oöphorectomies (castration), 1 a total extirpation of the womb, and 1 a laparotomy for hydronephrosis. Until 1873, says Bruntzel, statistics on ovariotomy showed but poor results for German surgeons as compared with the encouraging figures of English and American operators. England and America boasted 75% cures, whereas Germany had only 50%. The great improvement which has since then become apparent in the results of German operations is ascribed, in great part, to the conscientious carrying out of all antiseptic precautions. "Antisepsis," however, is a very vague conception, according to the writer, who believes that no two surgeons mean exactly the same thing by this word. At his clinic, for example (*i. e.*, the clinic of Spiegelberg), laparotomies are performed in a room which is also used for dispensary purposes, a room, moreover, which is low, unfortunately dark, and surrounded by lying-in wards. The same assistants that attend obstetrical cases also render service at gynecological operations. Yet a deleterious influence on the course and result of operations never became apparent, and antisepsis is always practised. The spray is invariably employed, and the author believes it is essential to success, at least under the circumstances attending operations at his clinic. Carbolic acid intoxication was in no case observed, in only a single instance a temporary "carbolic acid urine" appeared.

The 25 operations already mentioned were all successful. The 19 ovariotomies were performed according to the intraperitoneal method of treating the pedicle. Bruntzel prefers long incisions, insuring freedom of manipulation to the operator, to small openings which may interfere with the thorough exploration and subsequent cleansing of the abdominal cavity. He does not share the opinion of some operators that large incisions entail a proportionate increase of danger and thus lessen the probability of recovery. He is also in the habit of pouring large quantities of a 2% tepid solution of carbolic acid into the peritoneal cavity, to make sure of thorough cleansing and antisepsis.

The 4 oöphorectomies, although successful as regards the immediate result of the operation, bestowed no lasting benefit on the patients. Bruntzel is, therefore, inclined to restrict the applicability of this operative measure to certain rare cases offering unmistakable indications.

As regards the case of total extirpation of the uterus, the sarcomatous tumor soon recurred in the pelvic tissue.

From this isolated experience, the writer draws the somewhat hasty inference that laparotomy, for the removal of a uterus which is the seat of malignant disease, should not be performed. It is certainly true that, in the majority of cases, the severity of this operation is out of all proportion to the possible good that may follow it, since absolute immunity from a speedy return of the disease can never be secured. Still, past experience has shown that, in certain well-selected cases, a considerable prolongation of life may be reasonably expected to result from the removal of the malignant growth. E. C. W.

10. C. Mettenheimer: On Mycosis Vaginæ (*Memorabilien. Monatsh. für prakt. Aerzte*, 1880).—The recent observation of two cases of *mycosis vaginæ* were made the subject of a lecture on this affection by Dr. Mettenheimer, of Schwerin. Our knowledge concerning the occurrence in the female genitals of vegetable parasites was said to be very incomplete, in spite of the valuable researches of Winkel and Haussmann. Dr. Mettenheimer also stated that the close relation which mycosis vaginæ bore to diphtheritic affection of the parts was so insufficiently set forth in the various text-books that this circumstance alone would justify the placing on record of his observations. They related to but two cases, which were of a nature intermediary between mycosis and diphtheria. Case 1 was that of a young, robust, multiparous woman. About 15 weeks after the delivery of her last child, which she was then suckling, she experienced severe itching and burning sensations about the genitals. Failing in her own attempts to alleviate this irksome condition, she sought medical advice. An examination revealed a mycosis of the vulva and vaginæ. On separating the labia majora a whitish surface appeared, showing partly adherent, partly removable, crumbling masses. This whitish coating extended inwards to the distance of about two inches, terminating in a sharp line of demarcation. The cervix was not involved. The woman was in perfect health, in all other respects. Examination showed the whitish masses to consist of epithelial cells, organic detritus, and a thick network of thready fibres of the fungus known as oidium albicans. Local treatment resulted in a speedy cure. As a cause for the mother's malady the author assumes infection from her own child, which had suffered from persistent thrush.

The second case was that of a III.P., 30 years old, who had been afflicted for some time past with sore throat. This was in the autumn. In December of the same year, the throat-trouble assumed a more serious character, and she passed through an acute attack of what seemed to be a diphtheritic angina. It was during convalescence from this disease that she began to complain of intense itching of her genitals, adding that the parts were much swollen. An examination showed the vaginal mucous membrane to be covered over with white streaks and punctiform exudations to the extent of about one inch inwards. Some of these whitish masses adhered firmly to the subjacent tissues, whilst others were only loosely connected with them. These patches were ascertained to be composed of squamous epithelium, showing micrococci, and spores and mycelium of a fungus resembling the oidium albicans, and forming a close reticulated matting. The mucous membrane was much congested and extremely irritable. The cervix was free. Local treatment with a carbolic acid wash, and injections of permanganate of potash solution, effected a quick cure.

In this case also the writer is inclined to assume infection (auto-infection) as the probable cause of the distressing malady. E. C. W.

11. Duvernoy: The Treatment of Cysts of the Vulvo-Vaginal Glands by Injections of Chloride of Zinc.—DR. E. DUVERNOY reports a successful case of this kind (*Annales de Gynécologie*, April, 1880). A young servant, of a robust constitution, was admitted to the *Pitié*, in April, 1880, complaining of abdominal and anal trouble at each defecation. Her general health was excellent, but she suffered from chronic metritis and fissure of the anus. Besides these conditions, an examination revealed an ovoid tumor on the inside of the right labium majus. It had attained about the size of a green almond, was perfectly smooth, elastic, tense rather than fluctuating, but slightly painful on pressure, not adherent to either the mucous membrane or the subjacent tissue. Its mucous covering showed no alteration. An orifice was not discovered in connection with it, and pressure did not give rise to the appearance of any liquid upon its surface. The patient stated that she had perceived this tumor for some months past, that it had gradually developed, that it was not the seat of spontaneous painfulness, but that it annoyed her greatly when walking, and disturbed the performance of sexual intercourse.

A physician had told her that she had a hernia, and advised the wearing of a bandage. This diagnosis was erroneous, and in order to thoroughly refute it a hypodermic needle was introduced into the tumor. The fluid thus withdrawn was perfectly clear and transparent, but very viscid. The cyst was then completely emptied of its contents, but soon refilled and caused great annoyance to the patient. Three drops of a 10% solution of chloride of zinc were then injected, without previous emptying of the cyst. But the effect of this procedure was *nil*. A second injection, this time of six drops, was practised, and now the cyst, after having at first become more voluminous, slowly dwindled away, and finally all trace of it was lost. During all this time there had been only temporarily a slight painfulness at the point of injection.

The writer adds that this method of treating cysts of the glands of Bartholin is preferable to the other methods, on account of the absence of danger, the slight reaction, and the absence of all tendency to suppuration. Simple incision, incision with subsequent cauterization, drainage, extirpation, iodized injections, and the other methods which have been repeatedly tried, are less reliable and attended with greater danger.

E. C. W.

12. Monod: Cystitis of Women.—M. EUGÈNE MONOD (*Annales de Gynécol.*, May, 1880), in a lengthy "clinical study of cystitis in woman", demonstrates anew the importance and interest of this subject. The results of his observations are contained in the following conclusions:

1. The urinary symptoms incident to pregnancy proceed from two different causes, to each of which there corresponds a distinct clinical group of symptoms. The first group receives its explanation from the pressure produced by the gravid uterus, which leads to retention of urine. The second is caused by vesical congestion, which results from the predisposition of the bladder to inflammation, owing to its close vascular connection with the uterus.

2. During the first weeks of utero-gestation, there may occur a variety of acute cystitis, which is unquestionably caused by the development of pregnancy.

3. Immediately after, or during the first weeks following normal delivery, there may arise a variety of cystitis which, owing to the time of its appearance, deserves to be called *post-puerperal* cystitis.

4. The anatomical relations between womb and bladder, as well as their vascular inter-connections, account for the frequency of vesical disorders, accompanying many uterine maladies. Certain physiological changes of the bladder during menstruation, and at the time of the menopause, also influence the establishment of bladder troubles.

Thus there is seen to exist a whole class of vesical inflammations belonging only to women, and, contrary to the generally accepted opinion, cystitis is by no means rare in women. (We may remark that the "generally accepted" opinion in France does not quite correspond to the generally accepted opinion in our country. For here, we believe, the frequency of vesical disorders in women, especially in those suffering from some form of uterine disease, has long since been universally recognized.)

E. C. W.

13. Bernutz: On Uterine Hematocele as a Symptom of Hemorrhagic Pachy-Pelviperitonitis.—Dr. G. Bernutz has lately studied the pathology of uterine hematocele, and presents his views in a series of interesting articles (*Arch. de Tocol.*, March, April, and May, 1880). After explaining some of the difficulties which ordinarily attend the elucidation of the ultimate pathology of this not infrequent disease, Bernutz goes on to discuss the question from a historical stand-point. The opinions of leading pathologists are quoted, and the writer observes that the five cases embracing his report seem to place the essential point of Virchow's theory beyond the reach of doubt. This "*point capital*" of Virchow's theory is, that a certain number of intra-peritoneal hematoceles results from intra-pelvic hemorrhage in the new-formed membranes, which have their origin in a previous pelviperitonitis. Hence such hematoceles are to be interpreted as secondary manifestations of an antecedent inflammation of the peritoneum. Bernutz, however, finds an additional determining factor in the establishment of menstruation, or menstrual molimina. Three of the five cases which he has reported show an unmistakable causal relation between the menstrual epoch and the original development of the bloody tumor.

The most important conclusions of this study are summarized by Bernutz as follows:

1. Intra-peritoneal uterine hematocele may arise in two entirely distinct and different ways.

2. In the one case, which may be termed "classic" hematocele, hemorrhage takes place from the rupture of the products of extrauterine gestation; or from rupture of some of the internal organs of generation; or the escape of blood, which had distended the oviducts, into the abdominal cavity, where a secondary peritonitis is set up by its presence, this inflammation leading to the incapsulation of the bloody collection.

3. In the other case, the hematocele is the result of a primary pelviperitonitis, the hemorrhage occurring at a period more or less remote from the incipience of the serous inflammation. In this case the disease is a secondary manifestation of inflammatory action, and its true origin is found in the newly formed membranes lining the pelvic peritoneum.

4. These "neomembranous" hematoceles may be symptomatic of

various conditions. Thus they may indicate an acute pelviperitonitis in a woman who was previously attacked by a more or less severe inflammation of the pelvic peritoneum. Or they may point to a repetition of former subacute inflammations. Or, in fine, to a chronic pelvic peritonitis of a particular kind. There are, therefore, two varieties of hematocele, symptomatic of pelviperitonitis, each of which has a pathogenesis of its own.

5. In the hematoceles denoting an acute or subacute peritonitis, the hemorrhage arising in the new-formed membranes is, from the outset, rather profuse, being commonly determined by menstrual congestion. For this reason an intra-peritoneal hematoma becomes at once manifest. Frequently it becomes a matter of difficulty to distinguish between the two kinds of hematocele, unless the period of their incipiency has been observed by the physician. Fortunately, the practical importance of this fact is not very great, since the treatment is essentially similar in both varieties of the disease.

6. In the second form of hematoceles, which alone exactly corresponds to Virchow's description, the hematoma is the result of scarcely suspected morbid action, which is very well indicated by the name of "hemorrhagic pachy-pelviperitonitis." Under the influence of this chronic process, the pelvic peritoneum becomes occupied by stratified patches of new-formed membrane. In this way it becomes thickened, as it were, and slight hemorrhages take place between the superimposed lamellæ, thus forming interstitial blood-cysts. These hematoceles are strictly analogous to similar tumors of the tunica vaginalis. E. C. W.

14. Courty: A New Means for the Prevention of Hemorrhage in Operations upon the Female Genitals.—Under the above title PROF. COURTY, of Montpelier (*Annales de Gynécol.*, May, 1880), writes a somewhat lengthy paper advocating the prophylactic injection of hot water. He does not claim that such injections—and they are to be made as hot as the patient can bear them—produce preventive hemostasis in a perfect or complete manner. Nevertheless, the loss of blood may be considerably diminished thereby, and this is certainly of great advantage. Several hours, or when possible, several days before an operation, these hot injections are to be made. To a certain degree, the usefulness of this method might be assumed beforehand, when the good effects of hot water in menorrhagias and metrorrhagias are considered. The previous experiences of Chapman, Atthill, Gueneau de Mussy, and Emmet are referred to in this connection. Courty explains how natural is the transition of thought from the hemostatic action of hot water, to its resolving or "*décongestive*" action, and hence to its application as a "preventive hemostatic." He has been in the habit lately of treating cases of chronic congestion, chronic metritis, hypertrophy, and induration by such hot-water injections. And the results, he says, were invariably gratifying. This induced him to try their efficiency as a preparatory treatment in cases where he expected much hemorrhage during an operation. And here, too, the results were quite satisfactory. Thus the risk of hemorrhage was diminished, and the actual loss of blood lessened. This absence of oozing during the progress of an operation is a valuable factor, since the operator's view of his field is thus less liable to become obscured.

Incisions of the cervix, exsections of this part, or plastic operations upon it, have in this way been performed more readily by the author than was formerly the case. A case of vesico-vaginal fistula, previously operated upon by others with great loss of blood, at one time jeopardizing the life of the patient, was operated upon, and only insignificant hemorrhage observed. A distinctly visible pallor of the mucous membrane had been the result of repeated and prolonged injections of hot water. Dr. Emmet's views on hot-water applications are here extensively quoted. The author does not share all the opinions advanced by Emmet. Especially as regards the necessity of assuming the inconvenient posture recommended by Emmet, the author is at variance with him. For in Courty's experience injections may be readily and efficaciously practised with a large syringe, the patient using an ordinary bidet. Two or three daily injections, each one occupying about ten minutes, may be taken in this way, without causing the least annoyance or discomfort to the patient. Patients should also be taught to introduce the nozzle high up into the posterior cul-de-sac. Courty has fully described this method of taking injections in his "*Traité des Maladies de l'Utérus*" (p. 260). He thinks that often the whole secret of success lies in the insisting of careful and proper administration of this curative agent. E. C. W.

15. Eustache: Lesions of the Urinary Organs during Ovariotomy. —This was the subject of a memoir read at a meeting of the French Society for the Advancement of Science, by DR. G. EUSTACHE, of Lille (*Arch. de Tocol.*, April, May, 1880). After some general remarks on the accidents which are liable to occur in the course of the operation of ovariotomy, the author takes up the special consideration of urinary lesions. He begins by contrasting the comparative harmlessness of wounding the intestines, the uterus, or even the liver (case of Kœberlé), with the peril attending wounds of the urinary passages. "Since such wounds are inflicted only in very complicated cases, where there exist widespread, resisting, and vascular adhesions, and when a protracted operation is thus rendered additionally difficult, the more or less prolonged contact of urine with the peritoneum and lips of the wound will, indeed, become a serious complication." This especially, because the already exhausted condition of the patient warrants, per se, a bad prognosis. Such, at least, is the generally accepted opinion. Now, Eustache, in his last ovariotomy, had the misfortune to make a large wound of the bladder, but the patient speedily recovered, notwithstanding that urine had abundantly flowed into the abdominal cavity for over one hour. This occurrence suggested to him the idea that the prognosis, in similar cases, might be better than was generally admitted, and, provided adequate therapeutic measures were instantly adopted, might, in future, be still ameliorated. Accordingly the literature of the subject was studied, but the information thus gained was almost nil. The writer, therefore, communicated personally with many of the leading ovariotomists, and the answers he received tended to confirm his previous opinion. He then proceeds to communicate what he thus gleaned, and supplements the whole by an analysis of known cases.

Renal lesions are in the first place considered. The case of Spencer Wells is cited, in which a firmly adherent kidney was removed along with the ovarian tumor, the patient dying soon after. Three other cases, all instances of erroneous diagnosis, are cited. From the records of these cases no conclusion can be drawn.

Lesions of the ureters are next examined. Three cases, where one ureter only was wounded, are given. In each the patient was cured, without even the leaving of a urinary fistula. All these cases occurred in Germany. The author was unable to find similar instances in the records of French and English surgeons.

Finally vesical lesions are disposed of, and the author refers to an interesting personal observation, elsewhere fully described (*Arch. de Tocol.*, July, 1879). Dr. Eustache concludes as follows:

1. Lesions of the urinary organs during ovariotomy are very rare.
2. Wounding of the kidney, followed by extirpation, proved fatal, in the only case on record.
3. Lesion of the ureters was in every case followed by a cure.
4. Vesical lesions were more frequently followed by a cure than otherwise.
5. When the ureter has been divided, it should be immediately reunited by suture. Should this prove to be an impossibility, the upper end of the ureter should be secured in the walls of the bladder. If a uretero-abdominal fistula supervene, an artificial passage, going from the fistula to the bladder, should be established.
6. If the bladder has been opened during an operation, it should be immediately sewed up with carbolized catgut, and a self-retaining catheter introduced.
7. If the vesical opening occur posteriorly, the catheter and several cauterizations will suffice to establish the cure.
8. In all cases of this kind, subsequent treatment must be very cautiously carried out.
9. Antiseptic dressings generally assure success. E. C. W.

16. E. Verrier: Apparatus for the Instantaneous Reduction of Uterine Displacements (*Gazette Obstétricale*, June 5th, 1880)—Dr. E. Verrier has just completed the construction of an apparatus intended to effect the immediate reduction of malpositions of the womb, by relieving that organ of the superimposed weight of the intestines. He has successfully employed this new apparatus in several cases and now recommends its general adoption to the profession. It is so constructed that the position of the patient will allow the atmospheric pressure to re-establish the proper uterine equilibrium, by a removal of all intestinal pressure. In anteversion, retroversion, or prolapse, the woman is so placed that the intestines are carried towards the diaphragm. Digital pressure may sometimes become necessary to aid in the reduction, but generally the surgeon will not be required to interfere. Of course the apparatus cannot be effectually applied to those cases in which the anatomical condition of the uterus is such as to render it immovable. Such cases are not amenable to treatment by any method.

Dr. Verrier's apparatus consists of an upholstered seat with adjustable stirrups, and a movable back. The latter can be so lowered as to touch the ground. It can be secured at any angle with the floor, and is supported by two wire springs which are fastened to a suitable bar of wood nailed to the ceiling of the physician's room. A lever of the first order is connected with this bar at its centre. From the long arm of the lever hangs a cord, and the patient uses this to raise or lower her body at will, and with the avoidance of all unpleasant jarrings of her body. This latter fact is claimed by Dr. Verrier to be of inestimable advantage. We were not previously aware, however, that the bodies of patients under the ordinary methods of treating displacements were, as a rule, subjected to much jarring. E. C. W.

17. Boissarie: On Ergotine, its Drawbacks and Dangers.—DR. BOISSARIE (*de Sarlat*) in a note, read at a recent meeting of the Paris Surgical Society (*Annales de Gynécol.*, June, 1880), draws attention to the possible dangers attending the prolonged administration of ergotine, particularly when given by the mouth. After briefly alluding to the great and varied utility of this energetic drug, he refers to the experience of M. Debove. This gentleman lately reported to the Hospital Medical Society the case of a young woman, æt. 25, suffering from albuminuria, who developed a gangrene of both inferior extremities. This gangrene had followed treatment by ergotine, extending over four weeks, during which time a daily dose of 0.2 had been administered. Although a month had elapsed between the cessation of the drug and the appearance of gangrene (and contrary to the opinion of M. Debove), the writer thought that the two events stood in causal relation to each other.

M. Dujardin-Beaumetz had also observed the supervention of gangrene, in a case of typhoid fever, subjected to treatment by ergot of rye. The dose in this case was 1.0 daily, continued one month.

The author's case was that of a child, æt. 13, which, while in excellent general health, began to suffer from incontinence of urine. After having tried various drugs, without benefit to the patient, ergot treatment was commenced. Hypodermic exhibition of the medicine being refused, a daily dose of about 0.2 was given by the mouth. At first the results of this treatment appeared to be marvellous, the incontinence being completely relieved for several days. But soon the old troubles reappeared, and after continuing the ergot for two months more without apparent benefit, the medicine was stopped. This was about the 20th of February. During all this time, ill effects of the ergot had never been observed. On the 2d of March, however, the child began to complain of pains in the left side, general malaise was noticed, and the child seemed prostrated, and was feverish. On the following day, the pulse ranged at 110, the pains persisted, occasional crepitant râles posteriorly. On the morning of the 4th of March, the expectorations became extremely fetid. The sputa were raised with painful efforts, appeared of a grayish color, were thick and profusely abundant. The condition of the child grew worse from day to day, the pulmonary gangrene spread, on the 10th the sputa showed plentiful sanguineous admixture. Later the hemorrhage became profuse, and on the 15th it became fatal. This abrupt appearance of acute pulmonary gangrene is ascribed by the author to the influence of the ergotine, and the fact is pointed out that in this case also, as in that of M. Debove, some time had elapsed after cessation of the drug, before evil symptoms were first noticed. It seems, therefore, that the action of this powerful drug is truly a cumulative one, that it has the property of causing, sooner or later, a sudden explosion of formidable accidents, and that, therefore, new physiological researches are needful to explain the mechanism of its action. According to Dr. Boissarie, the principal conclusion to be derived from his observation is, that we should learn to abandon, more and more, the oral exhibition of ergot, and substitute in its place hypodermic administration of the drug. And also that, when the latter method is inadmissible, to use smaller doses by the mouth and avoid a protracted course of the medicine, when so administered.

E. C. W.

18. Meyer: The Diseases of the Uterus as Cause of Sterility. — (Copenhagen, Denmark, 1880.) In this perhaps somewhat too comprehensive exposition of the views entertained by almost all gynecological authors, in Europe and America, we find an original investigation of the *shape and position of the uterus in newborn children.* In 77 cases the author found the uterus oblique (sinistroverted and dextroflected) once, retroflected 5 times, and retroverted 9 times. In the remaining 62 cases the uterus was straight 9 times, in 6 of which it was at the same time anteverted. 3 times true anteflexion, or an angle between cervix and body, was present. In the remaining 50 cases was found what consequently must be regarded as the normal condition, the whole supravaginal part of the womb was anteverted, as a rule only slightly so, and at the same time curved on the anterior surface. Thus the whole supravaginal part of the uterus formed a single curved line, the concavity of which turned forwards. In most cases this curvature was very flat. This same curvature forwards was also found in 4 of the 9 retroverted uteri, and the author thinks the retroversion may be due to the position of the dead body on its back.

A true flexion, that is to say, an angle between the cervix and the body of the womb, was only found 8 times, 3 times anteflexion, 5 times retroflexion, when the relations were examined in the body, but if the womb is taken out and examined one can almost always produce an anteflexion by slight pressure on the fundus uteri, the infraction taking place at a point about corresponding to the limit between the cervix and the body.

H. J. G.

DEPARTMENT OF DISEASES OF CHILDREN.

EDITED BY . . . GEORGE B. FOWLER, M.D.

ORIGINAL COMMUNICATIONS.

PLEURITIS IN CHILDREN.

BY

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(Continued from page 431, Vol. XIII.)

Anatomical Characters.—In the commencement of pleuritis, the sub-pleural blood-vessels, lying in the connective tissue, and the capillaries of the pleura are engorged with blood, producing vascular points and arborescence, well seen through a magnifying glass of low power. Frequently, in children as in adults, minute extravasations of blood, resulting from extreme congestion, occur under the endothelial layer, perhaps scarcely perceived by the naked eye, but readily seen under the glass. Immediately exudation of liquid, holding numerous cells, begins in the connective tissue which surrounds the capillaries, the pleura becomes dry and lustreless, while the production and exfoliation of its endothelial cells are greatly increased. These no longer present their normal appearance, but are swollen and granular, in consequence of the inflammation.

Immediately after these parenchymatous changes occur, serum, fibrinogenic substance, and leucocytes begin to exude upon the free surface of the pleura. The term fibrinogenic substance, instead of fibrin, is employed, because it is now believed that fibrin itself is not exuded, but a substance which becomes fibrin, through the presence and action of certain agents with which it comes in contact, among which may be mentioned air, red blood-corpuscles, and even serum, from which fibrin has been precipitated (Virchow, Cornil, and Ranvier, and others).

In the exuded liquid, even if it have the appearance to the naked eye of ordinary serum, the microscope always reveals the presence of pus-cells or leucocytes, and red blood-cells, however small their quantity may be. The minute rootlets of the lymphatic system, which are interspaces or lacunæ in the sub-pleural connective tissue, and which, here and there, open by stomata upon the pleural surface, are clogged by inflammatory products, and their walls swollen at an early stage (E. Wagner and others). In these lymphatic channels, both pus-cells and coagulated fibrin are seen by the microscope. That pneumonitis, whether catarrhal or croupous, seldom occurs in superficial parts of the lungs without causing inflammation of that portion of the pleura which covers the affected lobules is universally known; but the reverse is also true, that pleurisy seldom occurs without causing inflammation of the alveoli which are adjacent to the inflamed membrane. The pneumonitis thus caused is so superficial that it is very liable to be overlooked at the post-mortem examination, in the presence of the graver lesions of the pleura; but a knowledge of its occurrence is important in diagnosis, for, though it may have no greater depth than a line, it is sufficient to produce crepitant râles, like those in ordinary pneumonitis. Therefore, if we hear these râles, we might mistake the disease for pulmonary inflammation and overlook the pleuritis—an error not unusual in the treatment of children. Trousseau, who surpassed most of his contemporaries as a clinical observer, wrote: "This sound, which is met with in the great majority of cases of pleurisy, is in fact a crepitant râle, and I have called it the crepitant râle of pleurisy. My interpretation is very simple. Just as we never have erysipelas without engorgement of the cellular tissue, there cannot be erysipelas of the pleura or pleurisy without an irritative engorgement of the sub-pleural cellular tissue or of the peripheric pulmonary parenchyma. This fluxion naturally carries with it into the pulmonary vesicles a serous exudation. . . . We also meet with a fine sub-crepitant râle, which is very often heard quite at the beginning of pleurisy, and which likewise nearly always continues for some weeks." More recent observers and writers fully agree with the statement of Trousseau, except that what he designates irritative engorgement the microscope shows to be a true inflammation of the pulmonary alveoli.

There are four constituents of every pleuritic exudation, namely, serum, fibrin, red blood-corpuscles, and leucocytes or pus-cells, which last are idential, in appearance, with the white blood-corpuscles and the lymph-corpuscles, and the origin of which has been investigated by many microscopists. It is convenient to classify cases of pleuritis according to the quantity and relative proportion of these constituents as follows: 1st. The plastic, sometimes designated dry or adhesive. 2d. The sero-fibrinous. 3d. The purulent. 4th. The hemorrhagic. In cases which pertain to the first group, the inflammation is chiefly parenchymatous, either no exudation occurring upon the free surface of the pleura, or if any, whether fibrin, pus, or serum, it is so slight that it possesses no clinical importance. The essential anatomical changes in this form of pleuritis, as regards the pleural surface, are rapid proliferation, retrogressive change, or decay and exfoliation of the endothelial cells, and the sprouting out of granulations which develop into connective tissue. In plastic pleuritis, there is no compression of the lungs, and the pleural surfaces are separated from each other only by the granulations which soon unite with those of the opposite surface. This form of pleuritis is not infrequently latent in children, for at the autopsies of those who have died of various diseases we often observe bands of connective tissue, uniting the opposite pleural surfaces, when the parents or nurses cannot recall to mind any sickness or symptoms, such as pleuritis commonly causes. It is certain, also, that plastic pleuritis is often overlooked, when not latent; the fever and other symptoms being attributed to causes quite distinct from the true one. The symptoms and physical signs are obviously less pronounced in this than in other forms of pleuritis.

2d. *Sero-fibrinous Pleuritis.*—This is the most frequent of all. It is the pleuritis which commonly results from catching cold. The serum exudes from the capillaries of the inflamed pleura in very variable quantity in different cases, and the pleural surface is soon covered with a fibrinous layer.

This may be a mere film, or it may attain the thickness of half an inch or more. It is usually at first slightly attached, but afterwards, from being blended with the granulations, it may be firmly adherent. In some cases it is quite compact, while in others it has a loose areolar texture, containing in its interstices serum and pus-cells. The fibrin is for the most part deposited on the pleura, but shreds and flakes of it, also, float in the serum. In the serum, as well as entangled in the fibrin, we find not only red blood-cells and leucocytes, but endothelial cells thrown off from the pleura which, as well as those still adherent, are almost always in the process of degeneration and decay.

If a perpendicular section be made through the pleura, in this as well as in the other forms of pleuritis, many newly-formed cells, the lymph-corpuscles, are observed in the meshes of the sub-pleural connective tissue, and, as we examine the section nearer to the surface of the pleura, these cells are seen to be aggregated in masses, and held together by a structureless, homogeneous matrix. The lymph-corpuscles appear to be the active agents in the formation of granulations. They are observed in various stages of transformation, from the round to the spindle-shape. The prolongations of the spindle-shape cells unite with each other, so as to form the connective tissue, capillaries, and other elements of the granulating surface. That the endothelial cells take no part in the production of the new tissue is inferred from the fact that most of them present the appearance of retrogressive change and decay. The granulations, as they sprout out from the pleura, become intimately blended with the fibrinous exudation, and when the effused liquid is absorbed, they unite with those of the opposite pleural surface, forming an organic union, by blood-vessels and nerves, between the lung and parietes, the lung and pericardium, or different lobes of the same lung, as the case may be. They pass, in two or three weeks, from embryonic to perfect tissue, vessels and nerves grow in them, and they possess, henceforth, all the properties of living tissues; they are able to absorb; they are liable to inflammation and hemorrhage, and may, in fine, participate in all the alterations of the organism of which they are a part (Jaccoud).

3d. *Purulent pleuritis.*—Although, as stated above, pus-cells are always present in the pleuritic exudation, we designate the disease purulent or empyema when the cells are so numerous as to render the liquid turbid. If there be a cloudiness, appreciable to the naked eye, and due to the pus-cells, the case is regarded as one of this form of pleuritis. Purulent pleuritis is, at first, in a large proportion of cases, sero-fibrinous, becoming purulent after some days or weeks —a fact readily ascertained by the use of the hypodermic syringe at different periods. In other instances, the pleuritis is purulent from the first. Pleuritis is, according to my observations, more apt to be purulent in children than in adults; and in ill-conditioned children, than in those who are robust. It is, therefore, apt to be purulent in one who has had an exhausting disease, as scarlet fever, and in the cachectic children, who reside in, or are brought to the institutions for treatment. Thus, in the New York Foundling Asylum, in 1879, an infant, aged two months and three days, became feverish, and had the expiratory moan and hurried respiration characteristic of pleuritis. On the fourth day, Dr. Reynolds, who was in attendance, inserted the hypodermic syringe and filled it with thin pus. This was, apparently, a case of primary idiopathic empyema. Pleuritis is purulent when it is produced by the entrance of some irritating substance into the pleural cavity, as pus or decomposed lung-tissue.

The production of pus in the pleural cavity is often surprisingly rapid, for, when many ounces have been removed by the aspirator, nearly the original quantity is sometimes restored within two or three days. As Fraentzel says, it does not seem possible that so many pus-cells which must surpass in number the aggregate of the white blood-corpuscles, could wander from the blood-vessels in so short a time, so that we must look for some other source of the immense production of leucocytes, in addition to that discovered by Cohnheim. A large part of the pus-cells is, in all probability, produced by rapid segmentation of the lymph-corpuscles. In two cases of purulent pleuritis, both infants, I found pus underlying the pleura near the hilus, without apparently any loss of integrity in the pleura, in such quantity that it was immediately recognized by the naked eye. Pus under the pleura, as well as within the pleural cavity, was apparently due to unusual violence in the inflammation, and rapid production of leucocytes.

Hemorrhagic Pleuritis.—This is not common. I recall but one case in a child, in whom the pleuritis occurred as a sequel of scarlet fever. The fluid several times removed by the aspirator had a deep reddish-brown color. I was apprehensive that the point of the aspirator, by wounding the granulations, had caused the hemorrhage which stained the pus removed at each subsequent operation. But, with the care exercised, and the great amount of blood-stained exudation, it seems almost certain that this was not the true explanation, and that it was a genuine case of hemorrhagic pleuritis.

Hemorrhagic exudation in the pleuritis of children is sometimes due to purpura hemorrhagica, being, like the other hemorrhages, a symptom of the general disease. In other cases it signalizes the commencement of a new inflammation in the vascular granulations of a previous pleuritis. Occurring under such circumstances, it is due to the increased fluxion in the numerous delicate capillaries of the granulations. Pleuritis due to cancerous or tubercular formations in or upon the pleura is sometimes also hemorrhagic. Jaccoud says: "A sero-fibrinous or purulent exudation may be red by the transudation of hematin, without true hemorrhage . . . ; the red exudations, which have been observed in scorbutus and marsh cachexia are really due to these pseudo-hemorrhages." In those cases in which there is true hemorrhage, it is still uncertain whether there is ordinarily rupture of the capillaries or a transudation, or whether the blood-cells may not escape in both modes.

A liquid pleuritic exudation, whether sero-fibrinous or purulent, obviously produces an important mechanical effect from its location. In young children, especially those enfeebled by sickness, the expansive power of the lung is slight, so that it readily yields to pressure applied to its surface, and becomes more and more compressed as the liquid accumulates. Except when retained by adhesions, the lung is pressed towards the mediastinum, and at the same time carried forward and upward. Patients with pleuritis usually lie on the back and affected side, so that gravitation determines to a considerable extent in what part of the pleural cavity the liquid will collect. In the considerable number of post-mortem examinations which I have witnessed of children who perished from pleuritis, chiefly empyema, the lung was usually attached anteriorly to the thorax from the mediastinum outward, as far as the costo-chondral articulations, or farther, except in the lower part of the cavity, where there were no adhesions, or adhesions only near the mediastinum. There were also attachments along the mediastinum, and attachments more or less firm on all sides, anteriorly, laterally, and posteriorly in the upper part of the pleural cavity, toward which the lung was compressed. Many variations occur, depending on the amount of liquid and the extent of the adhesions, but judging from autopsies which I have seen, I would say that in the average, in cases so severe that the question of operative interference arises, if we draw a line from the axilla downward and forward to the epigastrium, the lung is adherent to the thorax over the space anterior and internal to this line, while external and posterior to it the liquid separates the lung from the ribs. This fact is important, as indicating the proper point for puncturing the chest, namely, below the lower angle of the scapula, and between the eighth and ninth ribs. One reason why the earlier performers of thoracentesis were so unsuccessful was that they selected the anterior wall of the chest as the point of operation. Nowadays, however, no one would be justified in performing thoracentesis unless he first employed the hypodermic syringe and removed fluid at the point which he selects for the puncture. The statistics of Mohr, relating to lung displacement in empyema, chiefly statistics of adult cases, are somewhat different from my general recollection of cases occurring in infancy and childhood as stated above. In 23 cases he found the lung free from adhesions, and compressed against the vertebral column and the mediastinum; in 13 cases the organ was compressed from below upward; in 1 from above downward; in 4 from within outward; in 4 from behind forward, and in 4 from before backward. These variations depend on the adhesions which the lung happens to contract. Perhaps a point a little external to the perpendicular, passing through the angle of the scapula, is preferable for puncture, as I have known the lung to be adherent to the posterior wall of the chest near the mediastinum, when the portion further removed, say two inches from the median line, was separated by interposed liquid.

Sometimes the liquid is collected in multilocular cavities formed by the connective tissue, and these frequently intercommunicate. Exceptionally in children, as in the adult cases observed by Mohr, when there has been a large and rapid liquid exudation, or when the disease has been violent and of short duration, there are no adhesions.

On account of the great difference in the size of the pleural cavity at different ages during infancy and childhood, the amount of liquid, which produces that degree of compression of the lung which materially impairs its function, varies greatly. At the age of four months, three ounces produce complete collapse of lung, so that it resembles a fleshy mass (carnification). The largest amount of liquid relatively to the size of the chest, in any of the cases which I have observed, was about one and one-half pints, in the left pleural cavity in an infant that died at the age of twenty-two months, in Sept., 1867. The heart lay chiefly to the right of the median line, and the diaphragm was convex towards the abdominal cavity. The case occurred in the Almshouse on Blackwell's Island, and might in all probability have been relieved, had attention been directed to it sufficiently early.

Liquid in the left pleural cavity, when considerable, presses the heart towards the mediastinum, so that the apex beat, instead of being a little internal to the linea mammalis, approaches the sternum. As the heart is carried to the right, the beat is felt under the lower end of the sternum, and with still greater increase in the effusion, the pulsation is detected by the finger, to the right of the sternum. If the exudation be on the right side, the displacement of the heart towards the left is, for obvious reasons, less than the displacement towards the right, in pleuritis of the left side. Much external pressure upon the heart embarrasses its movements, and prevents proper filling of its cavities, while the action of the organ is accelerated so as to compensate. Therefore, the pulse is quick and feeble.

In one instance in my practice, the lower extremities, and the portion of the trunk below the thorax, became edematous, from compression of the ascending vena cava, and writers allude to cases in which other vessels and ducts, as the thoracic, are compressed, so as to seriously embarrass their functions. The patient with the edema was a boy of about four years, with empyema of the left side.

In large effusion, the mediastinum is pressed against the healthy lung so as to diminish its transverse diameter, and Traube has shown that the effect of this is to increase the length of the lung, or its vertical measurement. Consequently as the lung on the healthy side extends lower than in the normal state, the convexity of the diaphragm on this side is diminished, as well as on the affected side, where it is depressed by the effusion.

The pleura in protracted cases of empyema becomes much infiltrated, and from the growth of connective tissue which blends with it, is thickened, sometimes to the extent of one or two lines. A few months since, in removing the lungs from the body of a young infant that perished of empyema in the N. Y. Foundling Asylum, a portion of the costal pleura, two or three inches in diameter, was detached from the ribs. It had a thickness of about two lines, and its free surface was rough, where not adherent to the lung.

Occasionally the inflammation extends from the pleura to the pericardium, producing general pericarditis. I recall to mind four cases with this complication, in which the diagnosis was verified by post-mortem examinations. All had empyema, three on the left, and one on the right side. Pericarditis, always a grave disease, is almost necessarily fatal, when thus occurring as a complication of empyema. More rarely the inflammation extends from the pleura to the peritoneum. One such case occurred in my practice, the child dying of empyema of the right side, and at the autopsy we found the lesions of a localized diaphragmatic peritonitis of the right side, with a fibrinous exudation of small extent on the convex surface of the liver, directly opposite to that on the diaphragm. We are indebted to Von Recklinghausen for knowledge of the mode in which inflammation is propagated from the pleura to the peritoneum, and the same explanation probably applies to its propagation to the pericardium. In the serous covering of the diaphragm, pleural and peritoneal, minute stomata have been discovered, which pertain to the lymphatic system. They open upon the surface of the diaphragm, and underneath in the substance of the diaphragm connect with lacunæ or interspaces, from which the minute lymphatic vessels originate. These stomata and lymphatic spaces, pervious in their normal state, are usually clogged, as has been stated above, by inflammatory products, when the serous membrane is inflamed. Occasionally the inflammation traverses these lymphatic channels from one surface to the other, from the pleura to the peritoneum, thus causing by extension a circumscribed peritonitis.

The changes which the inflammatory products undergo are the following: With the abatement of the inflammation, the liquid portion begins to be absorbed, though absorption is much more tardy than in non-inflammatory effusions, since the absorbents are to a great extent covered, and clogged by fibrin and pus. The serum is first absorbed, and the flocculi of fibrin sink into depending portions of the cavity, or become attached to the fibrinous layers or the granulations upon the pleural surface. The pus-cells and the fibrin, whether in flocculi or layers, begin to undergo retrogressive change. They become granular from fatty degeneration, liquefy, and are absorbed. Sometimes portions of these degenerated products, which are not absorbed, form inert caseous masses, in recesses of the cavity, or between the bands of connective tissue, where they remain unchanged for years. With few exceptions, those who recover from an attack of pleuritis experience no subsequent ill-effect, though the bands and patches of connective tissue are permanent.

Pus always possesses irritating properties. Decomposed and putrid pus (ichor) is very irritating. Empyemic pus, therefore, like pus in other situations, now and then produces ulceration or necrosis of the pleural surface, by which it is confined, and in consequence of its destructive action, it sometimes establishes an outlet by which it escapes, with relief of the patient and cure of the disease. The chest-wall is thinnest anteriorly, in the infra-mammary region, and at this point the pus, when it makes its way through the thoracic wall, usually points and discharges. The fistulous opening thus produced, continues many months, until the pleural cavity is gradually obliterated by the adhesions, and the patient recovers.

By a similar destructive process in the pulmonary pleura, pus occasionally escapes into the bronchioles, and is expectorated. This mode of cure appears to be common in children, for my attention has not infrequently been called to the fact that children, during the progressive but slow convalescence from empyema, expectorated large quantities of muco-pus, although in some of the cases pus had been removed by the aspirator or trocar. Fraentzel makes the remark, which is fully sustained by clinical experience in this country, that although an opening is made in the lung by the necrotic or ulcerative process, so that pus escapes into the bronchioles, air does not pass from them into the pleural cavity. Pyopneumothorax is very rare in the empyema of children, except as air is admitted in the operation of thoracentesis.

As the liquid is absorbed, the compressed lung ordinarily expands in proportion to the absorption, so that more and more air enters its alveoli. But frequently, in cases of long duration, the absorption proceeds faster than the expansion, so that the ribs on the affected side sink below their normal level. As a consequence, the inter-costal spaces are narrowed, the shoulder is depressed, and the dorsal portion of the spinal column bends to accommodate the ribs so as to be concave towards the affected side. It is very rarely that the deformity thus produced is permanent. Though the newly formed bands and patches of connective tissue may so bind the lung that its return to the normal state is tardy, yet, with few exceptions, the alveoli one after another open to admit air, and when full inflation is attained, the symmetry of the chest is restored. But there are rare cases in which the newly-formed connective tissue is firm and unyielding, almost as cartilage, and lime salts are sometimes deposited in it, forming a calcareous *plaque*, which invests the lung like a cuirass. An unexpanded lung, with such a covering, obviously can never afterwards be fully inflated. I can recall to mind, however, only one case of permanent complete collapse or carnification of lung, resulting from pleurisy. The inflammation, which was treated by the late Dr. Cammann, occurred in childhood, and several years afterward, when the patient reached womanhood, although the general health was good, there were physical signs of an unaërated lung, and the consequent deformity (depressed shoulder and ribs, and bent spinal column). Pleurisy with its granulations and retrogressive products affords one of the conditions in which tubercles are developed, so that we sometimes find at the post-mortem examination of cases which have been protracted, "miliary tubercles in the pleura, while chronic phthisis and general tuberculosis are absent" (Delafield).

From the intimate relation of the heart to the lungs, this organ obviously suffers severely in every large pleuritic exudation. Total compression of a lung arrests one-half of the circulation through the pulmonary artery, except as the increased flow in the opposite lung serves for compensation. Hence, in cases of large effusion, which end fatally, we commonly find the pulmonary artery and the right cavities of the heart distended with blood and clots, while the left cavities, having received a diminished quantity of blood, are probably empty.

SYMPTOMS.—As has been stated above, pleuritis in children is sometimes latent, or attended by symptoms so mild as to attract little attention, even when there has been general inflammation of the pleural surface with much effusion. Both primary and secondary pleuritis may present this form, latency being more frequent the younger the patient. In feeble, cachectic children, with blood thin and impoverished, pleuritic symptoms, as pain, dyspnea, and fever, are less pronounced than in the robust, and, hence, latency is more common in the tenement house population of the cities and in the institutions than in the better walks of life. The following is a not infrequent example of latency. A feeble infant, aged five months and twenty-eight days, died suddenly in the Nursery and Child's Hospital, in December, 1870. The attention of the resident physician had not been called to it, as it was not supposed to be sick, except that it was ill-nourished and its general condition bad. The nurse who had charge of the ward stated that it presented no symptom of acute disease, unless a slight cough during the three or four days preceding its death. Percussion over the right side of the chest of the corpse gave a flat resonance, and at the autopsy the right lung was found compressed, nearly or quite destitute of air, and covered by a loose fibrinous layer, three-fourths of an inch thick in places, and a moderate serous exudation.

Ordinarily acute idiopathic pleuritis in children begins quite abruptly, and with symptoms which attract attention from the first. Probably in most instances it is preceded by rigors, or a chilly sensation, but this usually escapes notice, if it be present, in patients under the age of five or six years. Fever, fretfulness, and a physiognomy indicative of suffering are the common initial symptoms. If the patient be an infant, the fretfulness closely resembles that produced by colic, for which I have on several occasions known it to be mistaken by the attending physicians.

The symptoms of pleuritis are twofold, namely, the constitutional, or such as are common to all inflammations, and the local, or those referable to the chest. Various observers have noted the position in which patients lie in bed, as indicating the seat of the inflammation. It has been stated that adults, in the commencement of pleuritis, ordinarily obtain most relief with a decubitus on the sound side, but, when effusion has occurred, they lie on the affected side, unless there be marked dyspnea, which is most relieved by a semi-erect position, which allows greater descent of the diaphragm. I have not noticed that children with pleuritis prefer any fixed or uniform position, except there be marked dyspnea, which may prompt them to elevate the shoulders. The patient in the acute stage is commonly quiet when he lies in the position which he selects, and if disturbed from it becomes more fretful, his cough more frequent, and his suffering apparently increased.

In ordinary cases, the temperature rises on the first day to 102° or 103°. If it be more elevated than this, there is apt to be a complication. The fever begins to abate when the exudation has occurred. In suppurative pleuritis, the febrile movement is more protracted, often continuing for weeks or months, presenting, after the acute stage has passed, the characters of hectic fever with morning abatement and evening recrudescence. In weakly and anemic children, even when the pleuritis is pretty severe, and most of the usual symptoms are present, the temperature may be but slightly elevated. Thus, in one of the institutions with which I am connected, a young infant, whose fretfulness was during the first twenty-four hours ascribed to colic, the axillary temperature during the first three days never rose above 100°.

The pulse, in a quiet state, is usually between 105° and 120°, but in young children who are restless, it is often more frequent than this, during the first three or four days. It is accelerated as long as the temperature is elevated, but in sero-fibrinous pleuritis, after exudation has occurred, its frequency diminishes unless the heart be compressed. Compression and imperfect or partial filling of the cavities of the heart produce a feeble and rapid pulse. In empyema, the pulse is accelerated as long as pus is confined in the pleural cavity, unless its quantity be small.

Headache, usually frontal, is frequent during the febrile stage. Convulsions, which occasionally occur in the beginning of pneumonitis, are rare. Pain in the chest, on the affected side, is common, and is, therefore, a valuable diagnostic symptom, but it is often slight, and apt to be overlooked in infants and feeble children. It is increased by movements of the chest-walls, as in full inspiration, by coughing, or when pressure is made by the fingers in the examination. Its common seat is between the fifth and eighth ribs, external to the linea mammalis, but there are many cases in which the pain is referred to some other part, as the infra-clavicular, mammary, infra-mammary, or even the scapular or infra-scapular region. Rarely it is referred to the epigastric or umbilical region, or even, it is said, to some point upon the sound side of the thorax. This location of the pain at a point distant from the seat of the inflammation is attributable to the anastomosis of the intercostal nerves with those of the opposite side of the chest, or with those which ramify in the abdominal walls.

The pain of pleuritis, as it ordinarily occurs, has received different explanations. It has been attributed to tension of the pleura, to friction of the pleural surfaces on each other, and to extension of the inflammation to the neurilemma of the minute nervous branches of the pleura. All these causes apparently act in producing it, but the persistent pain in the first days of pleuritis, though increased by motion, is probably due in great part to that last mentioned. Pleuritic pain is sharp or stitch-like. It begins to abate in a few days, and in a large proportion of cases ceases by the fifth or sixth day; it is no longer noticed, except in coughing or during sudden movement of the chest.

The respiration is accelerated, as in all febrile diseases, but it is more rapid than in inflammatory ailments, which do not involve the thoracic organs, on account of the pain experienced on full inspiration. The patient instinctively avoids full inflation of the lungs, and the breathing is consequently rapid, to compensate for incompleteness of the inspiratory act.

In ordinary attacks of pleuritis, painful and hurried respiration is of short duration. It becomes easier and more natural towards the close of the first week. In subacute and chronic cases, the rhythm and frequency of respiration differ but little from the normal.

A cough, whatever the form of pleuritis, is one of the earliest symptoms. It is short, frequent, and dry, and in the most favorable cases begins to diminish in the second week. A loose cough is due to accompanying bronchitis, or bronchopneumonitis, or, at a late stage of the disease, to escape of pus from the pleural cavity into the bronchial tubes.

Little need be said in regard to symptoms referable to the digestive apparatus. Vomiting is common on the first and second days. Thirst, loss of appetite, and consequent loss of flesh and strength, are uniformly present. In empyema, which, from its nature, is protracted, nutrition is always greatly impaired. The surface presents an anemic appearance, the flesh is soft and flabby, and the emaciation is progressive till the pus is evacuated.

Physical Signs.—In children above the age of three or four years, the physical signs differ but little from those in adult cases, but under this age there are certain differences which the practitioner should know. We may, in the commencement of the attack, notice diminution in the movement of the chest-walls on the affected side, since the patient instinctively endeavors to repress respiration on that side, in order to lessen the pain. In severe cases, the epigastrium and hypochondria are sometimes depressed during inspiration (the so-called abdominal respiration), but this sign is less common and less marked than in severe bronchitis, and when present it may be largely due to accompanying bronchitis. After effusion has occurred, and the pain has abated or is slight, the signs due to irregular respiration are less pronounced than at first. The breathing is now nearly or quite normal; but it is well known that the effusion, if considerable, is apt to cause fulness or bulging of the thorax on the affected side, which is appreciable to the sight, so that its circumference on measurement is found to be greater than in health. But inequality of the two sides produced by the liquid is more common in children of an advanced age than in those under the age of three or four years. In infants, even when there is a large liquid exudation, the bulging is often so slight that it is scarcely appreciable, either by sight or measurement, and in not a few there is no apparent difference in the circumference of the two sides. I have repeatedly made careful measurements in infantile pleuritis during the stage of effusion, and been unable to convince myself that there was any difference, although other signs indicated the presence of an effusion which filled at least one-half the pleural cavity. I explain this fact in this way. The lungs of an infant, especially of one reduced by sickness, are very liable to a state of semi-collapse or partial inflation in their whole extent, and of complete collapse of their thin borders, as of the tongue-like process of the left upper lobe, which lies over the pericardium and of the margins of the lower lobes, which lie in the angle made by the thorax and diaphragm. This occurs in the weakly infant, even when there is no obstruction to the entrance of air, and the liability to it is greatly increased by external pressure applied to the lung, as from a pleuritic effusion, so that the lung recedes, becomes compressed, and unaërated, before the ribs yield to the pressure. If the exudation cease as soon as the lung is collapsed, there is little or no outward displacement of the ribs, and the intercostal spaces are not elevated. It is obviously very important to know this difference between infantile and adult cases, as it has a bearing upon the diagnosis between pleuritis with effusion and pneumonitis.

PALPATION.—In adults, and in children with strong voices, if the lung, deprived of air either by compression or an exudation within its alveoli, lies against the chest-wall, speaking or moaning produces a vibratory sensation which is communicated to the hand placed upon the chest. The fremitus is feeble or not appreciable when the voice is feeble. Therefore, in infants whose vocal cords are small, and particularly in infants reduced by sickness, this sign is ordinarily absent, or so slight that it is detected with difficulty, while in older and robust children it is distinctly perceived. If the conditions are otherwise favorable for the production of fremitus, but the lung is pressed away from the ribs by an intervening liquid, no vibration is felt when the patient speaks or cries. But if, in the same case, the fingers be removed to the supra-scapular, axillary, infra-clavicular, or mammary region, where the compressed lung comes in contact with the walls of the chest, fremitus may be perceived. Palpation also enables us to ascertain the point of apex-beat of the heart, variation of which from the normal site being one of the most conclusive proofs of a pleuritic effusion.

PERCUSSION.—In the first hours of pleuritis, there is either no perceptible change in the percussion sound, or the resonance is slightly diminished, from the fact that inspiration on the affected side is resisted by the patient, and the lung is only partially inflated. When exudation occurs, if there be a thin layer of liquid over the lung, the percussion sound is tympanitic. It has, therefore, this quality at an early stage in the infra-mammary, mammary, and perhaps infra-scapular regions, when the amount of liquid is small, and at a later stage, when the quantity of liquid is greater, the percussion sound over the lower part of the chest is dull, while that over the central or upper part is tympanitic. Entire filling of the pleural cavity with liquid, and total exclusion of air from the lung, give rise to a dull or flat percussion sound over every part, from the apex to the base. It may be stated as a rule in the pleuritis of children that, at a certain stage of the effusion, percussion produces a sound which is either decidedly tympanitic or which partakes of the tympanitic character. Skoda attributed the occurrence of tympanism to the fact that a lung still aërated vibrates better if surroundod by a thin layer of liquid, and consequently gives better resonance than when it lies against the chest-walls.

When the exudation is so great that the lung is totally compressed, and removed to a distance from the chest-walls, the finger in percussing experiences a sensation of solidity or resistance, and there is no longer any vibration of the ribs. Consequently the percussion sound is dull or flat, as over any solid body, differing from that in pneumonitis, in which there is still some vibration of the chest-walls, and the dulness is not absolute. In pleuritis, therefore, there is, according to the amount of exudation, either nearly the normal percussion sound, as at the beginning of the attack and in any stage of plastic pleurisy (pleuresie seche), or a zone of dull sound below, and another of tympanitic sound above, or a zone of normal resonance above, and one of dull resonance at the base, with an intervening one of tympanism, or finally, there is absolute dulness from the clavicle to the base of the chest.

It very rarely happens in the child that the level of the fluid changes by changing the position, on account of the adhesions, so that this sign, described in the books as one of great importance in diagnosis, affords very little assistance in case of children.

AUSCULTATION.—In the beginning of pleuritis, auscultation affords but slight information, except that the practised ear may detect a little diminution in the fulness of the respiratory act in the lung, whose pleura is inflamed, and perhaps a slightly exaggerated respiration in the other lung. But after twelve or fifteen hours, when exudation begins to occur upon the pleural surface, we may hear the dry friction sound, which can be imitated by pushing the finger strongly across the dry palm of the hand. It is only heard in occasional cases, since the physician may not make his visit at the proper time for hearing it, or he does not apply the ear over the proper place. Fraentzel says, "We shall scarcely ever fail to find the friction sound, in recent pleuritis, if we look for it early and diligently in some circumscribed spot." I do not think that this remark, however true it may be of adult cases, is entirely correct as regards children, for it is only in exceptional instances that it can be heard in them. It occurs both during inspiration and expiration, and it does not disappear after coughing as a rhonchus does, which may resemble it in sound. Perhaps it is not observed during several consecutive respirations, and then a deeper inspiration causes the pleural surfaces to glide upon each other and it is detected. The friction sound as sometimes heard is well expressed by the term scraping, and in other cases by the term creaking, as was noticed by Hippocrates, who compared it to the creaking of leather.

In some patients it is heard for a brief period and does not recur, and it may be detected only during strong and deep respiration or in coughing. It disappears entirely when the accumulation of liquid prevents contact of the surfaces. After absorption of the liquid, the friction sound may reappear, and in certain patients it is heard only at this time, namely in the third stage.

An interesting and common sound heard on inspiration is the so-called *crepitant râle of pleurisy*, produced in the superficial alveoli. The remarks made by Trousseau upon it have been already given. As stated above, the inflammation extends from the pleura to the pulmonary vesicles which lie directly underneath, and as soon as exudation occurs within them, the anatomical conditions are present in which the crepitant râle is produced, as in the ordinary form of pneumonitis. This râle may obviously be heard before any effusion takes place upon the free surface of the pleura, and it continues until the alveoli are so compressed by the pleuritic exudation that they no longer admit air.

The exudation in the pleural cavity changes the character of the respiratory *bruit.* A thin layer of liquid over the lung causes diminution in the force of the vesicular murmur, and soon an expiratory as well as an inspiratory sound begins to be heard. This modified vesicular murmur is weak, and more distant from the ear than the respiratory sound of health. When the exudation is sufficient to close the alveoli, while the air still traverses the medium-sized bronchial tubes, we notice a tubular or bronchial *bruit.* If the small and medium-size tubes are compressed, while the air enters the large tubes, the respiratory bruit may be amphoric. Total absence of respiratory sound results from complete collapse of the alveoli, and consequent exclusion of air from them, and arrest of the movements of the air in the tubes of the affected side. Jaccoud says, "Regarded as a sign of the quantity of the effusion, the modifications of the respiratory *bruit*, and of the respiration, may then be arranged in an increasing series as follows: diminution of the vesicular murmur; feeble respiration (*souffle doux*); no sound, and feeble respiration; bronchial respiration; no sound, and bronchial respiration; no sound, and cavernous respiration; general absence of sound (*silence général*). The replacement of an inferior term of the series by a superior term implies an augmentation in the quantity of liquid, and in general the passage of a superior term to an inferior term denotes a diminution of the effusion." But this statement relating to the effect upon the auscultatory sounds of the increase and decrease of the liquid must be modified as regards patients under the age of five years. In such patients it is rare, however great the effusion, that respiration is not heard when the ear is placed over the liquid. This is due to the small size of the pleural cavity, and the consequent ready transmission of sound from the centre of the thorax to its periphery. According to the amount of exudation and the degree of compression, the respiratory sound is a faint and distant vesicular, or broncho-vesicular, or bronchial murmur, and its character is found to vary from one to the other of these sounds, as we apply the ear over different parts of the chest.

When the inflammation is active, and the exudation occurs rapidly, bronchial respiration may be heard as early as the second or third day, or even by the close of the first day, in the infra-scapular region. If, on the other hand, the inflammation be chiefly plastic, or the exudation of liquid be slow, and its quantity be small, the respiratory murmur may be vesicular, though faint and distant, during the whole course of the attack. Sometimes when the murmur is vesicular in the greater part of the lung, broncho-vesicular or bronchial respiration is heard over a limited area, where the effusion happens to be sufficient to produce requisite compression of the lung.

The voice of the patient, when auscultated over the affected side, has a character which corresponds with and varies according to the respiratory murmur. Vocal resonance is feeble or absent if the respiratory murmur be vesicular. If it be bronchial, the auscultated voice is more distinct, having the character known as bronchophony, or when there is a moderate quantity of liquid over the lung, so that this organ vibrates, it may have that modification of bronchophony known as egophony. Occasionally we can hear the voice as a confused and and distant sound, when the quantity of liquid is so great that respiration is inaudible. The signs derived from the auscultated voice are not, as is well known, pathognomonic of liquid effusion. Bronchophony is more common and distinct in pneumonic or tubercular solidification of lung than in pleuritis, and even egophony may be produced without the presence of a liquid, by "pleural membranes realizing certain physical conditions" (Jaccoud). But since the auscultated voice is weaker in children than in adults, we often do not hear it in infants and ill-conditioned children, even when the anatomical conditions, as regards the lungs and pleural cavity, are favorable for its transmission.

In children as in adults, bronchial râles are common in pleuritis, dry or moist; coarse when produced in the larger tubes, or fine when occurring in the finer tubes.

[To be continued.]

FOREIGN BODIES IN THE NOSE AND EAR, WITH REMARKS ON THEIR REMOVAL.

BY

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CASE I.—A little girl, 3 years of age, came to my class at the Northwestern Dispensary, April 16th, 1880. [Nose and throat patients applying after 12 o'clock are admitted to the afternoon eye and ear service.] Her mother stated that for eighteen months she had had a foul discharge from the left nostril. There was still a sanguino-purulent discharge; no pain on passing the fingers over the whole length of the nose, and no visible swelling in its external contour; patient was unable to inspire or expire air through this nostril. On tilting the nasal tip upwards, a roughened, brown, globular body was seen, bathed in pus, which was solid to the touch of the probe. The opinion was expressed that it was either a foreign body or a detached inferior turba. An unsuccessful attempt was made to remove it with a too large polypus forceps, and a fit of crying resulted, accompanied by a considerable flow of blood from the nose.

The mother, unable to reconcile the possibility of the presence of a stone or shoe-button in her child's nose, with maternal dignity withdrew the patient. After several months of cod-liver oil and iodides for "scurvy" (ozena ?) in one of the prominent city clinics, and for eczema in another, the mother submitted her child to the removal of the body at the Metropolitan Throat Hospital, Sept. 17th, 1880. The diagnosis being confirmed, I introduced a Politzer's angular ear-forceps (scissor-handled) into the nostril, and dislodged the body with the first effort. Withdrawal was accomplished with a spiral motion, and some hemorrhage followed. One blade of the forceps embraced the globular superficies of an incrusted shoe-button, while the other had passed through the eyelet in such a way that it could only be withdrawn in the long axis of the eyelet. The nostril was syringed with warm castile soap-suds, and vaseline applied about the edges. The discharge gradually diminished and ceased in three days.

As to diagnosis, it is an almost infallible rule that a purulent discharge, tinged with blood, coming from a single nostril, indicates the presence of a hard foreign body. As to treatment, the most effective method is by prompt removal with dull-pointed forceps of suitable size. Extraction should be made upon the first withdrawal of the forceps, even at the risk of splitting the nasal angle. The nasal douche, advocated by good authority, swamps the nares of a child, who becomes uncontrollable, and the attempt must be abandoned for the time. It is a method which cannot be commended for promptness and efficacy.

Case II.—A little girl of 8 years of age came with her parents to the Northwestern Dispensary, Dec. 27th, 1880, with the statement of a "black thing in the nose." On examination, a black body was to be seen in the right nostril, which the probe found firmly impacted high up in the middle meatus. Child's father stated that for three weeks there came from the right nostril a dirty discharge, occasionally tinged with blood. The little girl submitted to the proposal of extraction, but preferred not to be held.

A Wilde's angular aural forceps (mouse-toothed) was passed high up into the nostril, and withdrew the impacted body on first effort. It was found to be a flat, double-eyed, rubber button, so incrusted upon every surface, especially on its flat periphery, as to conceal its identity. Button was 14 mm. (more than ½ inch) wide, and at the incrusted edge 5 mm. (about $\frac{3}{16}$ in.) thick. Withdrawal was followed by free hemorrhage, which ceased after a few minutes. Neither parent nor child could account for its presence, which fact, together with the coating on the button, indicated a residence of several years.

Dr. Clinton Wagner contributes the two following cases from the clinical notes of the Metropolitan Throat Hospital.

Case III.—A boy, 8 years of age, complained of difficulty in breathing through the right nostril, from which there was a constant purulent discharge. In other respects he was perfectly healthy. An examination revealed an obstruction in the inferior meatus of the right side, due to the presence of a hard, firm body;

I removed it without difficulty with my long narrow polypus-forceps; it proved to be a large, flat, horn button, which, from the incrustation covering it, had evidently been exposed to the action of the nasal secretions for a long period. The boy declared he had not forced it up himself, and that he could not remember how or when it was introduced into his nose. The father confirmed the statement of the lad, and also stated that he was quite satisfied that he would not wilfully tell an untruth. About ten days after the removal of the button, the patient died of diphtheria, attacking the nose, throat, eye, and ear.

CASE IV.—A child, 3½ years of age; right side of nose externally was puffed and swollen, with an offensive purulent discharge from the same nostril; general appearance of the child was that of health, with no evidence of strumous taint. The mother stated that the nose first seemed sore about eighteen months ago; recently several physicians had examined the case and gave as their opinion that there was a tumor in the nose, which eventually would have to be removed by surgical operation, but that, as the child's general health was good, and there seemed to be no constitutional disturbance from its presence, it was, upon the whole, advisable to wait until the patient became older before operating.

The purulent discharge being unilateral, and the general appearance of the child healthy, made me suspect a foreign body. My suspicions were confirmed upon introducing my nasal probe, which encountered in the inferior meatus a hard substance firmly impacted. I had the child tightly held, and then introduced a pair of long, narrow forceps, seized, and with a quick jerk brought away the body. It proved to be a large, flat seed, covered entirely with calculous deposit.

[A "foreign body bottle" is kept in the museum of the Metropolitan Throat Hospital, of whose contents are the foregoing specimens, as well as a variety of buttons, bits of paper, string, leather, calico prints, etc., which have been removed by Dr. Wagner and the staff, since the establishment of the hospital.]

CASE V.—A little girl of 2 years was brought by its mother to the Northwestern Dispensary in September, 1880, with the accompanying statement, that a wad of paper had been put up the left nostril by an older child. It lay in the middle meatus, nearly an inch from the anterior nares. A thick mucous discharge came from this nostril. It was easily removed with Wilde's angular ear-forceps (mouse-toothed).

CASE VI.—In May of last year, a mother brought her little girl of 4 years of age, with the story of a foreign body in the right ear. The external meatus was bathed with pus, on removal of which a globular lustrous body could be seen; it resisted the probe like a metallic body and lay at the full depth of the meatus, against the membrana tympani, and in the sulcus of the bony tympanic ring, which runs downwards and backwards from the rentrant angle, made by the anterior border of the membrane and the anterior wall of the meatus. This sulcus always exists to a greater or less extent. When it is deep, metallic and other substances heavier than water readily fall into it as into a pocket, and their dislodgment is not easy. As might be expected, a large part of this body lay too low in the meatus to be seen through a speculum. There was deafness and head-noises, but no pain. Faithful attempts at dislodgment with the syringe and hot water were unsuccessful, and, before resorting to a forceps, I resolved to try the experiment of a change of position between the head and feet —a very available method with children. So seizing the child by the ankles and holding it up with the right hand, I pulled upon the auricle with the thumb and forefinger of the left hand, in this way straitening the meatus, while the third, fourth, and fifth fingers of the same hand were caught into the little patient's hair, and thus a firm hold of the head was secured. With a smart shake the foreign body rolled out upon the floor, and was found to be the globular end of a lead penny-whistle. As usually occurs, the mother was entirely ignorant of its introduction.

It may be stated as a rule that a foreign body may lie in the meatus, even when impacted, without producing a discharge, unless laceration of the dermoid layer and invasion upon the integrity of the periosteum have taken place.

CASE VII.—A little boy of 2½ years of age was brought by his mother to the Northwestern Dispensary, February 18th, 1880, with the story of a foreign body in the left ear. With the speculum and mirror it was easy to see that such was the case. A body covered in by yellow wax was all that could be seen. The right meatus was plugged with hard rolls of cotton, and a towel firmly held against the ear, in order to obtain a relative test of the hearing power of the left ear, in which lay the foreign body. (The usual method of closure of an ear by aurists is to press the tragus into the meatus with the forefinger. It was not resorted to with this child, as the compression sound thus made would detract so much from the hearing power of the tested ear.) As was to be expected, attempts of snapping the fingers, whistling, etc., were detected only when the efforts were considerably exaggerated.

The treatment first resorted to was the syringe and hot water, with the result of washing away the wax coating, and bringing to view a dark-brown body. This was hard to the probe and immovable. Carbonate of soda was given to the mother with the advice to syringe it in hot solution (one teaspoonful to the tumbler of water), twice daily. Upon her next visit, the meatus having yielded somewhat in its hold upon the body, I was able to pass both blades of a Wilde's angular ear forceps (mouse-toothed) above and below the body and thereby easily to remove it. It was found to be a coffee-kernel, in regard to whose introduction no satisfactory explanation could be given by the mother. The membrana tympani had lost something in lustre, but none of its individual parts had changed position. In a few weeks the reflex had been restored, and the hearing power, by gross tests, had returned to normal.

CASE VIII.—A little girl of 4 years was brought to the Dispensary, July 19th, 1880, with the statement that she had complained of a "smart buzzing" in the left ear for three days.

Inspection with speculum and mirror brings to view a nest of maggots in lively motion. Strong, hot suds of tarsoap are injected into the ear in large quantity. Result: a number of larvæ, epithelial scales, and dirty serum, and immediate release from the pain, itching, and noise, as might have been expected. The membrana tympani had lost its lustre, and had a macerated look, but regained its appearance and tone after a short time.

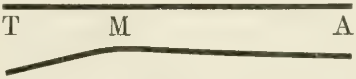
CASE IX.—Before my return from the country in September, 1880, Dr. Prescott, assistant at the dispensary clinic, received an infant girl, six months old, who was found to have a cockroach in the left ear. This was removed with warm soapsuds and the ear-syringe on first effort.

Remarks.—It is worthy of note that, of the nine cases, the obstruction was found about an equal number of times in each nostril and ear. The constant occurrence of animals, as flies, bugs, and their larvæ in the same ear, must be attributed to coincidence. The usual position of an infant, asleep in the crib or on the floor, is upon its back; while an older child oftener selects the side. Maggots, grubs, and larvæ are found generally in a meatus foul with the discharge of a purulent or eczematous otorrhea. Observe that the foreign body in Case VIII. was a mass of grubs, and in Case IX. an insect, both children having been brought in the hot summer months. As to the introduction of a foreign body into the nose or ear, it is fair to presume that a child old enough to acquire superior skill with its right hand will sit or stand before its playmate, and will insert the body with the right hand into the left nostril or meatus of its fellow. The literature devoted to the removal of foreign bodies from the ear is immense. Every text-book in surgery, from the days of the Greek and Latin MSS., during the block-letter days, as well as the more distinctly otological treatises of the last fifty years, has, with rare exception, found a prolific field in surgical interference with this class of accidents. Surgical genius has been ever active, and the arts of the instrument-maker in this branch have been applied to an astonishing extent. A partial synopsis of the literature of this chapter is given by Roosa in his excellent Treatise on Diseases of the Ear.

There are certain preliminary points in every case which serve as guides as to instrumental interference, as well as to its ultimate and quick success. These are: the history of the case, if any can be had, which will establish whether the intruded body is soft or hard; whether it be a bean, pea, coffee-kernel, lozenge, a cherry pit, button, marble, ivory ball, stone, or some metallic substance; the amount of pain due to pressure, which is always an indication for speedy removal. The length of time it has been retained is of little moment, so long as the adjacent structures have suffered no damage. Under this head it is to be noted that the absence of pain, swelling, discharge, and progressive deafness imply an immunity of retention of the foreign body. In the cases presented, where its retention was obviously of a few months, and, if possible, of two to three years, no harm was done. Cases are recorded among adults, where a foreign body has been retained a number of years. Wreden removed a button from a young man, which had been retained twelve years. I once removed two hard plugs of wax from the ears of an elderly lady who had been deaf twenty-two years, as she supposed, from catarrh. No catarrh being found, and the drum-heads presenting a tolerably normal lustre, hearing was entirely restored. It is only by inspection with the mirror and speculum, that the depth of the body and any possible inflammatory changes can be noted. A body lying against the membrana tympani, as its first position, or as acquired by unskilled interference, should be removed without delay. With much greater emphasis it may be stated, that a body lying within the cavity of the middle ear can never be removed too soon. These cases are rare; but their rarity is in harmony with the gravity of the clinical phenomena attending them. Constant pressure of a foreign body upon the internal bony wall of the middle ear may soon lead to periostitis or to serous effusion of the labyrinth, either of which may eventuate in Menière's disease; or to caries of the successive bony structures of the internal ear, and finally to fatal meningitis.

If inflammatory symptoms exist in any part of the aural tract, which would be increased by attempts of dislocation of the foreign body, a continuous stream of a very warm astringent solution, as warm as can be borne, should be directed into the ear. The best astringents for this purpose are alum and zinc, whose solution should be weak. Dr. Chas. Fayette Taylor, during a prolonged attack of acute aural catarrh, with severe otalgia, in the summer of 1879, invented a douche[1] for this purpose, whereby a constant stream may pass into and out of the meatus.

I do not care to consider the instrumental means of removal of foreign bodies from the ear, except in one category, namely, that all should take a second place; for the syringe and hot water in competent hands will usually accomplish the desired effect. The different angles at which water may be directed into the meatus, combined with proper traction upon the auricle, will allow a small quantity to find its way around the body, and so sufficiently disturb it as to make easy its final dislodgment. A glance at the accompanying diagrammatic sketch of the aural meatus will verify this surgical precaution.



Let *T* represent the tympanic or inner end of the canal, *A* the auricular, or outer end, and *M* the meatus. Firm traction upon the auricle, outwards and backwards, makes straight the cartilaginous portion of the meatus, which is by far its major part. In case of deep impaction of a solid body, the syringe will not readily accomplish this; but its persistent use will ultimately solve the question. If, however, pain, progressive deafness, or severe head-symptoms supervene, the surgeon is then justified in resorting to internal interference with instruments, the child being in *complete narcosis*. For this purpose, the best agent is chloroform. What instrument is to be selected must depend upon the judgment, or skill, or previous experience of the operator. Among the best instruments are Wilde's angular forceps (mouse-toothed), Buck's curette, the common surgical probe (bent to suit the exigency), and Gruber's crutch-forceps. Voltolini has broken the impacted bean by quickly stabbing it with the galvano-cautery needle; on cooling, the bean broke with a report into many bits, which he was able to remove with the syringe and hot water.

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[1] This ingenious instrument may be seen at Caswell, Hazard & Co.'s drug-store.

Löwenberg and E. H. Clarke have succeeded in extraction, after other means had failed; the one, by gluing a camel's-hair pencil to, the other, by coating with adhesive plaster, the foreign body. In 1876, in Politzer's clinic, I saw this maneuvre, viz., gluing a large camel's-hair pencil to the presenting surface of a small stone, succeed in its removal. I have on one occasion removed two bits of a beer-glass, which were hidden entirely from view in a traumatic sulcus in the meatus, by means of the curved, spoon-like curette of the oculist; and this, after failure with the syringe, bent probe, and curved forceps. Finally, whatever instrument is used, the meatus should be thoroughly illuminated, a full narcosis should be secured, and every manipulation made with the utmost delicacy and precision.

A COMPLICATED CASE:

REMITTENT FEVER WITH JAUNDICE AND PROBABLE HEPATITIS; CONVULSIONS; HEMIPLEGIA; TYPHOID FEVER; OCCURRING IN A RACHITICAL CHILD.

BY

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I HAVE thought it worth while to publish the following case, because it has seemed to me of unusual interest, not less on account of its complicated nature than of the extraordinary vitality exhibited by the patient under, apparently, the most adverse circumstances. My only regret in connection with it is that the record is not more complete, and especially that no autopsy could be obtained.

The child first came under my notice in November, 1876, at the Demilt Dispensary, and its early history is recorded with some detail in the clinical reports of the dispensary formerly published in the *New York Medical Journal.*[1] The family were Cubans, and when first brought to me the child was three months and a half old. In Cuba, as in all tropical countries, I believe disorders of the liver, and especially those of a serious nature, are much more common than in this latitude; and I find, on inquiring into the history of this family, that the uncle and brother of the child's mother both suffered from hepatic abscess (an operation having been performed with success in the case of the latter); while the father, during a sojourn in Fernando Po, an island with an intensely hot climate off the western coast of Africa, had contracted malarial fever which was accompanied by grave disorder of the liver. It would seem, therefore, that there was an hereditary tendency to hepatic trouble in the case, in addition to the tendency to enlargement of the liver which is so frequently met with in rachitical children.

When I saw the child first, it was a very puny and poorly-developed infant; the skin and conjunctiva were deeply icterosed, the color being dark enough to approach that which is seen in what is known as "black jaundice." The mother appeared to be very feeble and anemic, and said she had been in extremely poor health before the birth of the child. For several years she suffered great mental anxiety on account of the exile of her husband from Cuba, and the confiscation of his property in consequence of his hostility to the Spanish government, which had left the family in poverty. She had had five children previous to this one. The two eldest, who had been born before the reverse in her fortunes, were living and in good health, but the last three were dead. They had all been weakly children, and two had been carried off in early infancy by diarrheal disease, while the third had died of whooping-cough, complicated with pneumonia, at the age of two years.

The jaundiced condition, the mother stated, was seen at birth, and had continued uninterruptedly from that time on. The child had been artificially fed from the first, and had been given a great deal of starchy food. It was, naturally, very fretful and worrisome, appearing to be almost constantly in pain; it slept but little, and for some time previously it had been suffering from diarrhea. The urine was of a deep yellow color, and the feces light-colored. From the continuance of the yellow discoloration from birth, as well as the markedly cachectic appearance of the child, I concluded the case to be one of some congenital deficiency of the biliary ducts—a condition which, according to West and other authorities, is fatal, though life may be prolonged for a few months. I, therefore, gave a very unfavorable prognosis, and prescribed only some simple remedy for the diarrhea, which was evidently increasing the infant's weakness, though adding advice as to the proper method of feeding, and also ordering brandy in small doses.

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[1] See the New York Medical Journal for November, 1877.

By the end of a fortnight the diarrhea had disappeared, and the general condition of the child seemed slightly improved, though there was no perceptible difference in the jaundiced appearance. I now commenced a course of alkaline treatment, with the idea that there might possibly be no congenital malformation, as I had supposed, and feeling assured, at all events, that it could do no harm. In a month more there was found to be some change, though not very marked, in the yellow discoloration, and this improvement was more noticeable in the conjunctiva than in the skin, on account of the naturally dark and sallow complexion of the child. In the mean while, there had been occasional diarrhea, and the stools had sometimes been green; but there had been, on the whole, a very gratifying improvement in the general condition.

By the expiration of another month, the jaundice had improved very greatly, although marks of its presence were still quite noticeable. Evidences of rachitis, however, were now beginning to appear. The head perspired a great deal during sleep, the hair was becoming worn from the occiput by the burrowing of the latter into the pillow, there was some bronchial catarrh, the lifting of the child by the hands upon the chest-walls seemed to occasion pain, and the bowels continued in an irritable condition, sometimes being relaxed, and sometimes costive. Consequently I now prescribed cod-liver oil, with syrup of iodide of iron, and ordered such hygienic measures as seemed appropriate under the circumstances. By the early part of February (three months after the child had first been seen), all vestiges of the jaundice had disappeared.

A considerable portion of the above history is taken from that published in the "Clinical Reports of the Demilt Dispensary," to which allusion has been made; and I have thought it well to present this condensed record of the early months, first, on account of its probable connection with the subsequent history of the case, and secondly, in order that it might be made evident what a poor start in life the little patient really had. The last note given in the above account is the following:

"September 26th, 1877.—The child has been seen from time to time during the interval that has elapsed since the date of the last note (Feb. 10th), and there has been no return whatever of the jaundice. The rachitis, however, has continued to progress in spite of the treatment. . . . It is now thirteen months old, and has six teeth, which it began to cut late. The first teeth to protrude were the upper middle incisors, and this is a sign of rachitis, to which, I believe, Dr. A. Jacobi was the first to call attention.

. . . In addition, we find the square head, with prominent forehead, the wide-open anterior fontanelle, the chicken-breast, the beaded ribs, and the enlarged extremities of the long bones so characteristic of the rachitical diathesis."

From the date of this note, down to the time of the last illness of the child, I have preserved no regular record of the case; and this is, perhaps, not to be regretted, as its recital would probably be of but little interest.

During this interval of nearly two years and a half, the child entirely escaped all the infectious and exanthematous diseases incident to early life, but suffered to a considerable extent from bronchitis; while occasionally he would have an attack of pneumonia, such as we so frequently find occurring in these rachitical children. Once or twice also, if I remember rightly, he had some return of jaundice; but this was not severe, and did not seem to interfere to any extent with his health. He continued to take the cod-liver oil and iron, intermitting it from time to time for a longer or shorter period, and increased very considerably in strength, though his growth was comparatively slow, and the evidences of rachitis yet remained very perceptible. Thus, at the time of his death, the anterior fontanelle was still quite widely open, although he was then nearly four years old. In November, 1879, he had a rather sharp attack of apparently malarial fever, which was accompanied by some icterus, and which was controlled by the use of quinine. After that I saw him but once (in February last) before the onset of the troubles which terminated his life. As far as I can recall, he was then free from jaundice; but, as was before remarked, his color was naturally so sallow (which was, indeed, the case to a greater or less extent with all the members of the family), that, if it was but slight, it might possibly have escaped my notice.

On the afternoon of the 11th of April last, I was sent for in haste to see the child, but, being away from home at the time, I did not reach the house until about ten o'clock at night, another physician having in the mean while been summoned. I found the patient in an unconscious state, with the pupils moderately dilated, and learned that he had had convulsions for several hours, which, it was stated, affected exclusively or principally the right side of the face and the right upper and lower extremity. The physician who had been called in had left before my arrival, and when he did so, had expressed the opinion that the child would not live through the night. He undoubtedly had an almost moribund appearance, and the prognosis certainly did not seem very favorable; but, finding that he was able to swallow anything in the way of liquid that was given him with care, I ventured to say that I thought it possible that he might survive the immediate attack, though his ultimate chances of recovery were very bad. The parents informed me that for some little time past he had been growing more and more jaundiced, the discoloration of his urine being of late particularly marked, and that he seemed at times to have considerable pain. The treatment ordered that night consisted principally of bromide of potassium, with a certain amount of alcoholic stimulus, which seemed strongly indicated by the extreme depression of the patient.

The next day I found him perfectly conscious, and considerably improved in other respects; but I now discovered that there was almost complete paralysis of motion, with partial paralysis of sensation in the right upper and lower extremities, though there was no appreciable facial paralysis. By daylight, the jaundice was very apparent. There was also considerable fever, and I found, on making a physical examination, that there was marked enlargement of the liver, with slight tenderness on palpation. There was no appreciable diminution in the secretion of urine, which was very high-colored, staining the linen a deep-yellow. At no time during the child's illness did the urine contain albumen.

Suffice it to say that for the next month the child remained in much the same general condition, the jaundice and local evidences of trouble about the liver continuing, while the fever, which was apparently never altogether absent, varied in intensity from time to time. There was, however, gradual but steady improvement in the paralysis during this time.

Soon after the first of May, I noticed a considerable increase in the febrile action, in spite of the use of quinine and other agents employed to control it. I regarded the case as one of remittent fever, with engorgement and probable inflammation of the liver; and, fearing a fatal termination, on the 13th of May I called my friend Dr. B. F. Dawson in consultation. It was 5 P.M. on that day when we saw the child together, and the temperature was then 103½°. When we came to make an examination of the abdomen, a distinct eruption of rose-colored spots, which disappeared on pressure, was discovered, and the diagnosis of typhoid fever was made. This exanthem was evidently of very recent origin, since I had constantly exposed the abdomen in making examinations of the liver, and for the purpose of frequently applying cantharidal collodion to various parts of the hepatic region. There was found to be slight enlargement of the spleen and some tympanites; but there was no tenderness or gurgling on pressure in the right iliac region. During the last twenty-four hours the countenance had assumed quite a decided typhoid expression, and there was now present a certain amount of mental hebetude, which had not previously been noticed. The tongue, which had all along been heavily coated, was more dry than at any time during the illness, and the teeth, as for some time previously, were covered with sordes. There was and had been no diarrhea whatever; but it is now quite generally recognized that the symptoms of typhoid are, as a rule, much less pronounced and more irregular in children than in adults. Dr. Dawson advised that quinine should be given in ten-grain doses, and this failing to reduce the temperature sufficiently, that the cold pack should be resorted to. He also suggested that mercurial inunction should be practised over the hepatic region. The prognosis was regarded as very unfavorable, and it was thought advisable that the free use of alcoholic stimulus, which I had been employing for some time, should be maintained.

Before leaving the house, I ordered that ten grains of quinine should be given at once (the child had previously had ten grains, in two doses, during the day), and on calling again at 10 P.M., I found that the temperature had been reduced to 103°, a fall of half a degree.

When I came the next morning (May 14th), the temperature was 104°, notwithstanding the fact that ten grains of quinine had been taken, and I at once had the child wrapped from its axillæ to its groins in a cloth long enough to go around the body several times, which was saturated with cold water. He was at first somewhat alarmed, but afterwards rested very quietly in the pack, which seemed to afford him no little comfort. At the end of half an hour, the temperature was found to have fallen to 102°, and the cloth was removed. I ordered the quinine continued at the rate of ten grains morning and evening, and that another cold pack should be given the next day, previous to my visit.

On the 15th, I called about 2 P.M., and found the temperature to be 101½°; the quinine and pack having been given in the morning as directed. The general condition of the patient was now apparently better than two days before, when the consultation was held. There was no difference noticed in the hepatic symptoms, but the child was decidedly brighter, and even seemed inclined to play a little.

On Sunday, the 16th, no pack had been given up to the time of my visit (though the quinine had been administered), and I found the temperature 103°, and the condition less favorable than on the day before. The pack was at once ordered, but I could not remain to note its effect.

On the 17th, I did not get time to call until 5.30 P.M., when I found the temperature had reached 105°. The quinine had been given as usual that day, and a cold pack also at 10 A.M. As the fever was so high, I ordered that two packs should be given that evening; but afterwards learned that on account of the child's being asleep, the second one was not resorted to.

May 18th, at 2 P.M., I found the temperature 103°. The child had had one pack at 10 A.M., and I ordered two more during the day. The record of the 19th is precisely the same.

At 3 P.M., on the 20th, the temperature was 103½°. At that time the child had had two packs that day, the last at 1 P.M., and I ordered two more during the afternoon and evening.

At the same hour on the 21st, the temperature was 104°, after two packs had been given, and I ordered three more to be given that day. It will be perceived that the packs had apparently less effect in reducing the temperature than when their use was commenced; and the whole condition of the child, it may be stated, was very unfavorable, though there was still no diarrhea.

On the 22d, at 2 P.M., however, I found the temperature 101½°, after two packs had been given, the last at noon; I ordered one more in the afternoon, and in case the fever ran high again, an additional one later.

May 23d, 3 P.M.—Temperature 103°. The child had had two packs, and I ordered two more, the last to be continued for three-quarters of an hour if the fever was very high. As he had now begun to vomit the quinine which he took at night, I advised that the second dose should be discontinued, but that the ten grains in the morning should be kept up.

During the next four days I never found the temperature less than 103°, although the child was constantly receiving five cold packs a day, and on the 25th, at 2 P.M., it was 103½°. Notwithstanding the continued high temperature, however, the strength of the little patient seemed to hold out in the most astonishing manner, and the general condition did not now seem appreciably worse than it had been for some time previously. It must be borne in mind, however, that the stimulant was pressed to the full extent that it could be tolerated.

On Friday, May 28th, I was not able to call until 6 P.M., and I then found that, although three cold packs had been given during the day, the thermometer indicated the high point of 104½°. Fearing a return of the convulsions if the temperature remained thus elevated, I at once ordered the child placed in a cold bath for fifteen minutes, and that later in the evening another cold pack should be given. He was still taking ten grains of quinine a day, but, at this time, five grains were being given in the morning and five at night.

It was 2 P.M. when I saw the patient the next day, and, although one cold bath and one pack had already been employed, upon my arrival the temperature stood at the alarming figure of 105½°. The case seemed altogether hopeless; but I ordered twenty grains of quinine and a cold bath, to be followed by two or three cold packs later. The next day (May 30th), the patient was in a cold pack at the time I called, and the temperature was 104°.

At 2 P.M. on May 31st, Dr. Dawson again saw the child in consultation with me, and we now found the temperature to be 106°. Since the increase in the temperature noticed on the 28th, I had been thinking that an exploratory puncture ought to be made in the liver, as it seemed to me that, although no sense of fluctuation could be obtained on palpation, there might be a collection of pus in the organ, which at least served to aggravate the febrile symptoms, and it was principally to have his opinion as to advisibility of the procedure that I had called in Dr. Dawson the second time. Accordingly we were prepared to aspirate in case any pus should be detected. The condition of the liver, so far as it was appreciable by external physical exploration, had not changed materially since the date when this was described. It was perhaps slightly larger and a little more bulging in outline; but there was apparently no greater tenderness on pressure over it. Selecting the most protuberant point on the surface, which was about three or four inches from the umbilicus, we inserted the needle of a hypodermic syringe into the substance of the liver for an inch or more, but did not succeed in withdrawing the slightest quantity of pus, nor was there any trace of pus whatever on the point of the needle when it was removed. Counter-irritation was ordered to be made by two blisters over the hepatic region, and the cold baths and packs to be kept up as before. In addition to the other treatment, I prescribed three drops of tincture of aconite three times a day.

June 1st, 1.30 P.M.—The child has had convulsions since 7 A.M. to-day, but these are less severe than before, and confined to the left instead of the right side. The mouth is slightly drawn, and the pupils are quite dilated. The patient swallows with difficulty. He is partially conscious, but his utterances are unintelligible. The temperature being 105°, I ordered him to be kept in a cold pack continually. Five grains of bromide of potassium were to be given every hour, and later every three hours. To-day the mother informs me that he has had several slight hemorrhages from the bowels of late.

June 2d, 10.30 A.M.—The convulsions finally ceased at seven last evening, after continuing at varying intervals for twelve hours. The child has been kept constantly in a pack since my last visit, and the bromide of potassium and aconite have been kept up as ordered. The temperature is 103°. The child is rational, but very weak, and the extremities are cool. There is now some diarrhea, and during my visit he had a passage which was of a light-brown color, but not very thin in consistence. No blood has been passed by the bowels since yesterday. Instead of the quinine, which was taken steadily up to the time of the convulsions, I now ordered five grains of salicylate of soda three times a day, the dose afterwards to be increased to ten grains.

June 3d, 10 A.M.—Temperature 102°. The child is sleeping quietly and naturally, and is evidently better. He has had only one evacuation of the bowels since yesterday, and the urine is lighter in color than before. There has been no return of the convulsions.

June 4th, 10 A.M.—Temperature 103°. The child appears a little inclined to coma. He can readily be aroused, but the greater part of the time seems very heavy. The next day at 2 P.M. the temperature was 102°, but in all other respects the condition was very much the same. The day following (June 6th) I was obliged to be out of town and did not see him.

June 7th.—Temperature 103°. There is even a more marked tendency to coma, the child remaining only semi-conscious, although he can still be roused without difficulty. Since yesterday a decided prominence, of quite a firm and resisting nature, had appeared just between the umbilical and left hypochondriac regions, and this I concluded to be due to a curious contraction of the abdominal muscles, which did not, however, seem to be accompanied by any special pain. There is also more tympanites than has before been noticeable. During my visit the patient had a passage, which was yellowish-white, very firm in consistence, and tinged with blood. This was the first time that the bowels have been moved since yesterday.

June 8th, 2 P.M.—Although the temperature is 104° to-day, the expression of the countenance is much more animated, and there is apparently no stupor whatever remaining. In consequence of the high temperature I ordered frequent spongings in addition to the frequent cold pack, the cloths to be changed every half-hour.

June 9th, 10 A.M.—Temperature 100½°, the lowest point reached since the attack commenced. The mother reports that there was high fever during the night, and that there was a glassy look about the child's eyes early this morning, but the expression of the latter is perfectly natural now. The passages are of a decidedly more yellow hue, and are sometimes a little loose.

June 10th, 7 A.M.—The general condition much the same. The bowels are not now loose (there being only one or two passages a day), and the color remains quite yellow. Yesterday after my visit, the child vomited a considerable quantity of dark-colored fluid, which seemed to be blood, and shortly afterwards a smaller amount of the same. Still later he had another slight attack of vomiting, but the matters vomited were of a light color. The evacuations from the bowels were also slightly tinged with blood. The abdomen still continues tympanitic, though the prominence mentioned has disappeared, and the patient seems to suffer considerable pain in the region of the liver, spleen, and kidneys.

Saturday, June 12th, 6 P.M.—Temperature 103½°. The patient seems weaker, and emaciation is more marked than before. There has been no return of the vomiting, and the condition is otherwise unchanged. Ordered poultices, sprinkled with laudanum, which had previously been employed to some extent, to be again applied over the hepatic region, and twenty grains (instead of ten) of salicylate of soda to be given in the morning.

June 13th, 9.30 A.M.—Temperature 104°. Just before my arrival there were indications of approaching convulsions, such as great restlessness and nervous twitchings, but these promptly disappeared when the child was freely sponged with cold water. I ordered that he should be kept constantly in a wet pack, that cold spongings should be given every half-hour, and, in addition, two or three cold baths, of fifteen minutes each, through the day, if the fever continued high.

June 14th, 12 M.—Was gratified to find that the temperature had fallen to 100°, and that the patient had improved in every way. Only one cold bath was given yesterday, and none at all to-day as yet. Twenty grains of salicylate of soda were taken this morning. The liver is appreciably less hard on palpation than for some time past, and the bowels are of a more decided yellow, while the urine is not so deeply colored as before. The same is true of the conjunctiva. The expression of the eyes and the whole countenance is much brighter and more natural than has been the case for a very considerable period. There is no diarrhea (the child averaging two passages a day), and no more blood has been passed.

June 15th, 2 P.M.—Temperature 102½. With the exception of the increased temperature, the patient does not seem any worse than yesterday, and looks quite bright and comfortable. Last evening, however, he passed blood twice by the bowels, the first time a considerable quantity, and the second time but little. He has also passed a little blood by the bowels to-day.

Wednesday, June 16th, 6 P.M.—Temperature 100½. I had been summoned early this morning, but did not receive the message, and could not get time to call until evening. Now find a very marked change in the patient. This morning at three, the mother informs me, he awoke with a wild scream. After that he was seized with spasms, which continued to a greater or less extent all day. When they occurred, there would be marked rigidity of the limbs (not confined to one side of the body), and the eyes would open to their utmost extent, with dilated pupils and a fixed glare, but there were no clonic convulsions. Sometimes internal strabismus would be noticed. When I first saw him he appeared to be in a death-like stupor, and looked as if he might expire at any moment. The eyelids were nearly closed, the pulse feeble and frequent, and respiration very quiet. During my visit he was seized with one of the spasms just described, and for a short time there was strabismus, and the countenance altogether presented a ghastly and horrible spectacle. In a few minutes, however, he relapsed into the quiescent state in which I found him on my arrival. He was still able to swallow slowly, but I did not think that he could possibly live through the night. All day the mother had been giving him five grains of bromide of potassium, in accordance with directions which I had previously left in case of the recurrence of convulsions at any time. I ordered brandy and milk, and brandy and beef-tea, in small quantities, alternately every few minutes, and that a hot bath should be given instantly in case any violent convulsion came on.

June 17th, 10 A.M.—The temperature has gone down to 99½°. Learned that after my visit last evening the spasms gradually became less and less frequent. This morning find him lying in a condition of stupor, though there is no stertorous or labored respiration. Occasionally there is a little momentary stiffening of the arms and legs, but that is all. The child is still able to swallow slowly. In addition to the supporting treatment, ordered a hot mustard foot-bath, the wet pack and spongings having been discontinued on account of the low temperature.

2 P.M.—The temperature has now increased to 103°, and, consequently, the packs and spongings are resumed. Otherwise the patient is in the same condition as in the morning. He has had two passages to-day, one light-colored and the other very dark, somewhat loose, and very offensive in odor.

June 18th, 10 A.M.—Temperature 100½°. The general condition much the same as yesterday, although the expression is much less death-like. The eyes remain nearly closed, and he lies very quietly; breathing easily and slowly. I ordered four hot mustard foot-baths to be given during the day, and a blister behind each ear, to be kept on for six hours, if necessary to induce vesification.

5.30 P.M.—Temperature the same. The semi-comatose condition still continues, though the patient seems to have rather more sensibility than before. Thus, he evidently felt the pain when the blisters were removed. The serum from the blisters, both of which drew well, contained coloring matter of the bile, like the urine, and was a deep yellow. He has had several evacuations of the bowels to-day, rather loose and very dark and offensive. There has been no blood in the passages.

June 19th, 2 P.M.—Temperature 101½°. The patient lies in a deep stupor; and the eyes, which remain nearly closed, are filmy and lifeless. He has had one or two dark and offensive passages to-day. As he was now almost totally unable to swallow, I ordered a small enema of brandy with beef-tea or milk to be given every half-hour.

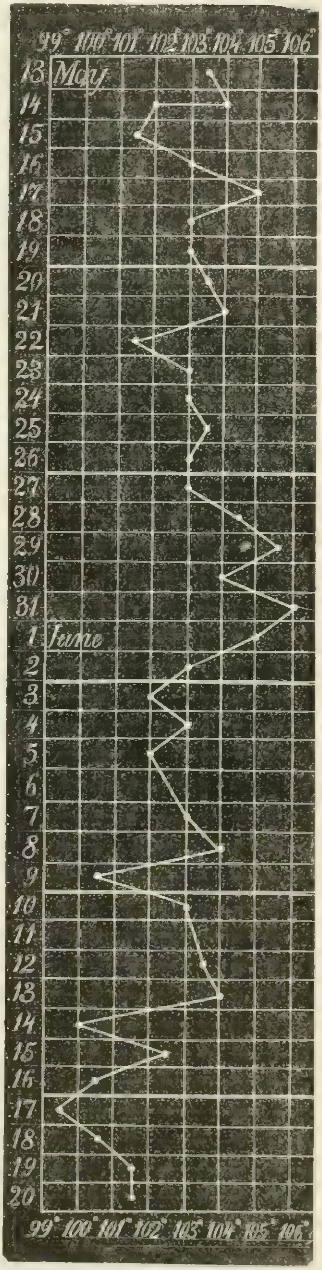
June 20th, 10 A.M.—Temperature 104¼°. He is able to swallow again, and has taken several wineglassfuls of milk and beef-tea with brandy, so that the enemata have been given less frequently. Otherwise, the condition continues much the same, and I notice an ominous rattling of mucus in the trachea.

June 21st.—The patient died quietly at twenty minutes past four this morning.

I fear that the above account may seem tedious to many, but the case was one of such great interest to me in several respects that I have felt justified in recording the details which I have. One of the most remarkable features about it was the high temperature which persisted so long in spite of all the measures that were adopted to control it. By a reference to the accompanying chart its course can be seen at a glance; and it will be noticed that up to the last week of life it was seldom below 103°.

Yet in spite of this continued high febrile action, the child lived on; and when the antecedent history of the case and the nature and gravity of its other features are taken into consideration, I think it will be admitted by all that the vitality of this rachitic and apparently extremely feeble child was something very unusual. To me it presented the most extraordinary instance of tenacity of life that I have ever met with. Several times during the course of the illness, as has been seen, the patient was actually moribund; and yet on each occasion this constitution, which from infancy had seemed so exceedingly delicate, rallied in the most astonishing manner. How the child continued to live under such a complication of troubles, any one of which would have seemed sufficient to destroy life in a brief time, was a continual source of wonder to me during the progress of the case.

Whether the severe convulsions which occurred on three occasions during the child's illness were due to cholesteremia resulting from the jaundice present, the continued high temperature, or to some other less obvious cause, may perhaps be open to question. To me it seemed that they were in all probability attributable to the disturbances of equilibrium produced by the fever. One point of great interest in connection with them was the difference in the manifestations of the three attacks; the first two consisting mainly of clonic convulsions, on the first occasion confined for the most part to the right side, and on the second to the left, while in the third they were symmetrical and of a tetanoid character. The paralysis which followed the first attack would seem to indicate that a certain amount of extravasation took place in the brain at that time.



As to the hemorrhages from the bowels which were noted on several occasions, I suppose they might be explained either on the supposition that they were a result of the intestinal lesions of typhoid fever, or that they were due to the engorged condition of the liver. If the dark-colored fluid vomited by the child on one occasion, as mentioned in the record of June 10th, was really blood, the latter would appear to be the more probable explanation; but, of course, it is not impossible that both these causes may have contributed to the hemorrhages.

I am quite aware how incomplete the record of such a case as this must be without an autopsy, but, unfortunately, this was impossible to obtain. The father of the child, when the matter was explained to him, at once recognized the importance of the examination and gave his consent to it; but no amount of persuasion was sufficient to overcome the prejudices of the mother in regard to it.

22 West 31st Street, New York.

HOSPITAL REPORTS.

INFANTS' HOSPITAL, RANDALL'S ISLAND, N. Y.

Service of Dr. J. J. Williams.

Reported by W. E. Hopkins, M.D.

Acute General Tuberculosis, Catarrhal Pneumonia, and Pericarditis.

Mary Keeler, æt. two months; white; admitted Aug. 31st, 1880; died Nov. 1st, 1880. The child was remarkably large for its age, and in splendid health; remained perfectly well until Oct. 6th, when noticed that had slight cough; normal temperature and pulse; physical examination revealed slight bronchitis; was ordered a simple expectorant; cough continued, and gradually got worse. There were no decided symptoms, however, until Oct. 17th, when temperature was 101°. This was controlled by quinine; and child seemed to be doing well until Oct. 20th, when temperature ran up to 103°, P. 160, R. 48. Examination revealed very decided dulness over thorax, surrounding lower lobe of left lung, and several dull spots on right side. On auscultation, bronchial breathing was distinctly heard over whole lower lobe of left side, and fine, crepitating râles over several spots on right side. There was a well-marked friction sound heard, both in front and behind, on left side; the vocal fremitus was increased, and bronchophony very distinct; the face was blanched and expressive of pain; the usual expiratory moan was present; the throat was much congested and swollen. The child was poulticed, and the quinine increased.

Oct. 23d.—Up to this time the child did well, though no change was found on examination. The temperature became reduced, the pulse and respiration less rapid.

Oct. 24th.—Vomited all the morning; controlled by gr. $\frac{1}{3}$ hydrarg. cum cretæ, every two hours. Commenced to fail; ordered Spts. ammon. arom., ♏ii.; and Brandy, gtt. xv., every three hours.

Oct. 28th.—Continued failing; breathes with difficulty. Pushed the stimulants.

Oct. 31st.—Child very weak. T. 103°, P. 160, R. 60.

Nov. 1st.—Death occurred at 4.30 P.M.

Autopsy.—Twelve hours after death; body of good size; fairly nourished; rigor mortis present; surface pale.

Head.—Not examined.

Thorax.—Pleural cavities contain no fluid. There is a thin layer of recent fibrinous exudation on pulmonary layer of pleura, covering the lower lobe of the left lung. Vessels of pleura on both sides are injected. Lungs: The surfaces of both, especially the right, are covered with thickly-set tubercles, of varying size. These are seen just beneath the pleura, and at some places form little elevations on its surface. On section, find the substance of both lungs filled with cheesy infiltration, some softening in their centres and tubercles, some very minute, of grayish color, and translucent; others much larger, and having a yellowish hue. The lower lobe of left lung is completely consolidated by the product of catarrhal inflammation, in stage of dense red infiltration. Very few tubercles are seen in this lobe. Other portions of the lungs show atelectasis, congestion, and edema. There are evidences of a general bronchitis; bronchial glands enlarged; pericardium is filled to distention with thick, creamy-looking pus, having a slightly greenish tinge. Both layers of the pericardium show the presence of a thick, fibrinous exudation. This is seen chiefly over right auricle and ventricle. Heart's cavities contain soft black clots. No abnormal appearances.

Abdomen.—Peritoneum normal; liver normal size; scattered over the surface, beneath the capsule, are seen a few tubercles; spleen small, deeply congested, and on its surface and in its parenchyma are seen minute tubercles thickly crowded together. Kidneys show a few scattered tubercles over their surfaces; right is in condition of hydronephrosis; lining membrane of pelvis and calices is very pale, and presents no appearances of inflammation; ureters, right, irregularly dilated ; about large enough to admit passage of an ordinary lead pencil; opposite ureter slightly enlarged; mesenteric glands enlarged.

Renal and Vesical Calculi.

The following case is of interest, as I believe the condition found is of rare occurrence in one so young :

Maggie Brennan, aged 6 years; white; admitted Oct. 16th, '78; died October 24th, 1880. Has always been delicate. On entrance, was found to be suffering from incontinence of urine, and on examination a large calculus was detected in the bladder. This was crushed, and a large number of fragments removed. A dilated condition of the urethra remained, and the urine would dribble away at all times. In other respects, the child's health was much improved. The improvement continued until February of the following year. The patient then complained of headache and pain in right side, the latter being continuous. Examination again revealed the presence of stone; the urethra was redilated, and several small phosphatic calculi extracted ; the child at once commenced to mend, and would run around and play, seemingly as well as ever; she remained well until Oct. 22d, 1880, when she commenced to vomit and suffer with intense headache; examination of the urine revealed an immense amount of pus.

Oct. 23d.—The child complaining of an agonizing pain in right hypochondriac region, radiating downwards, and to the left; the temperature was below normal ; the pulse slow and weak; the countenance anxious ; the skin bathed in cold perspiration—in act, a condition of general collapse prevailed; the child was given hot baths, morphine hypodermically, and stimulants. The pain was overcome, but she failed to rally, and death occurred in a few hours.

Autopsy.—Twenty-six hours after death, rigor mortis present, body somewhat emaciated. Head not examined. Thorax, adhesions present between lower lobes of both lungs to diaphragm. Lungs congested, most marked at the dependent portion (hypostatic). Heart, pericardium, normal. Heart muscle pale and flabby; both ventricles contained clots. Abdominal cavity normal. Liver slightly enlarged; sharp anterior border. On section, the organ was firm, with patches of localized paleness scattered through it (fatty). Congested spleen, normal in size, pale. Kidneys enlarged and lobulated irregularly; right measured 3½x2, left, 4x4. On section, pus escaped freely from both, of a thick yellow color. The capsules were loosened, cortex pale and moderately firm, diminished in size, columns pale and glistening. The pelves were markedly dilated and occupied the whole body of kidney, save half an inch, which composed the cortical and remaining portion of the medullary structure. The left contained a calculus in one of the upper calices, of irregular shape, serrated surface, and white in color (phosphatic). Another, about ¼ inch long by ⅛ inch wide, of the same character as the above, but not confined, being loose in the pelvis. On removing the right, a firm body was felt occupying the outlet of the pelvis and upper portion of the ureter. On section, the same general appearances were found as in the left. The calculus was of the same character as found in the left kidney, but larger, being about an inch in length, and completely filling the orifice of the ureter. Both kidneys were fatty. Both ureters were dilated, especially their upper portions, where they presented an eroded and thickened surface; irregular in outline, and congested. The mucous membrane throughout was congested. Bladder small, contracted, of about the size of a Madeira nut; its walls thickened, and the mucous membrane thrown into many folds. The organ was nearly full of pus, of the same character as that which escaped from the kidneys. Stomach was the seat of sub-acute gastritis.

Pertussis, Convulsions, Catarrhal Pneumonia.

Julia Dryer, W. N. M., white. Age, 21 days. Admitted Oct. 29th, 1879.

The child was healthy until the latter part of August, 1880. At that time symptoms of coryza and bronchitis set in and progressed, notwithstanding treatment, until, at the end of three weeks, the characteristic whoop of pertussis was heard. The seizures became frequent and violent, the child becoming black in the face during the attack. The treatment consisted of the following:

℞ Potassæ bromidi,	ʒ i.
Tr. belladonnæ,	♏ xvi.
Syr. pruni virg.,	℥ i.
Aquæ,	q. s. ad ℥ ij.

M. Sig., ʒ i. every 3 hours.

The dose of belladonna and bromide was afterwards much increased, but for some time had no control over the paroxysms, and the child continued to grow worse until the 5th of August, when, at 4 P.M. of that day, and when in the midst of an attack of coughing, she gave one wild shriek, the eyelids and extremities commenced to twitch, the surface became livid, there was a gush of blood from the nostrils, the thumbs were turned in and the fingers tightly clinched over them; the pupils were dilated and eyes turned in; vomited a yellow fluid; the tongue was extruded and jaws tightly closed over it; the muscles of back and neck grew rigid, and the child was thrown into position of opisthotonos. Slowly the rigidity was overcome, the blood disappeared from the surface, leaving it a deathly white; the breathing grew more regular, the twitching ceased, except in eyelids and hands; and at the end of fifteen minutes the child was, seemingly, recovered. The urine voided immediately after the attack was of a greenish color, but otherwise normal. The child was ordered gr. iij. of chloral every two hours, by enema. There were two more convulsive seizures the same day, at four and five o'clock respectively, but they were very slight and easily controlled by the inhalation of a little ether. Each attack was followed by profuse perspiration. For the next week the child did well, the attacks of coughing being much shorter and less violent. At the end of this time, there was another slight convulsion, and another two days afterwards, they both occurring exactly at the same time as the first attack, namely, 4 o'clock in the afternoon, and both being easily controlled. The violent symptoms had almost disappeared, when it was noticed that the breathing was becoming rapid, pulse inflammatory, and temperature elevated (ranging from 100° to 103°). Physical examination revealed spots of catarrhal pneumonia in both lungs. Child was poulticed, quinine ordered, and recovery rapidly took place. From this time the improvement was steady and rapid, and with the exception of a severe attack of eczema, the child has nearly regained its former standard of health.

REVIEWS.

A Treatise on Diphtheria. By A. Jacobi, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, New York; Physician to Bellevue, Mount Sinai, and the German Hospitals, etc. 8vo, pp. xi., 252. New York: William Wood & Co., 1880.

Professor Jacobi's contributions on the subject of diphtheria have for twenty years placed him prominently before the profession, as a writer upon that disease. In the present treatise we are offered the matured results of an experience of nearly a quarter of a century, and in a locality where diphtheria has been more or less continuously prevalent for that period. The studious habits of the author render it highly probable that every contribution of merit, if not every non-meritorious contribution likewise, that has been published upon the subject has been submitted to his cool scrutiny, amounting, where worthy of it, to critical analysis.

It was to be expected, then, that a treatise from so distinguished a source should embody the indorsed result of the investigations—historical, pathological, etiological, and clinical—of the numerous authors who have crowded medical literature with such copious material in monographs, essays, lectures, and reports on diphtheria, that its mere enumeration would be oppressive even to the insatiable devourer of bibliographic pabulum.

Prof. Jacobi does not disappoint this expectation, and his volume is therefore necessarily a tolerably large one, despite his purposed abstinence from the relation of cases.

The contents of the volume are divided into nine chapters: History, Etiology, the Manner of Infection, Contagion and Incubation, Symptoms, Anatomical Appearances, Diagnosis, Prognosis, and Treatment; each chapter being concluded by a summary of its salient points. The text is preceded by a succinct preface, with a few supplementary pages concerning the recent researches of Drs. H. C. Wood, Jr., and Henry F. Formad, of the University of Pennsylvania, which appeared too late for other notice in the volume, and which confirm experimentally the position taken by the author regarding certain topics discussed in the body of his treatise. An exceedingly full index facilitates reference to all the points coming under discussion in the text.

Despite the copiousness of historical record that has distinguished some European treatises on diphtheria, Dr. Jacobi evinces an amount of research that has enabled him to supply a number of forgotten references of some moment. We notice from this account that the earliest cases recorded in America occurred at Roxbury, Mass., in December, 1659, at which time diphtheria was very prevalent.

The chapter on Etiology has been prepared with great care. The special susceptibility of children to the disease is explained by the greater succulence and softness of their oral and pharyngeal mucous membrane, the frequency of catarrh of their small nasal cavities, the frequency of buccal catarrh and of stomatitis, the uncleanliness entailed by the existence of these affections, the disproportionate magnitude of their tonsils, and the large number and size of their lymphatics. Bacteria are not regarded by Dr. Jacobi as the source of diphtheria; and while he presents the claims of the parasitists with due deference, he judiciously indicates that their case is by no means proven. He is not positive in his estimation of the theory of sepsis from chemical putrefaction, which may be placed in the same category. The cause of diphtheria is, indeed, an open question, and, from appearances, likely long to remain so.

As to the manner of infection, our author acknowledges both local modes of origin, and blood-poisoning by inhalation; but is not the latter, strictly, a local mode of poisoning also? Attention is recalled to an observation noticed by the author twenty years ago, that epidemics of diphtheria are accompanied by numerous cases of non-membranous inflammations of the throat. It is an open question whether these cases of pharyngitis or catarrhal sore throat are due to minute absorptions of the specific poison of diphtheria, or whether the catarrhal conditions of the throat, so general at this time, do not favor the attacks of diphtheria by the excoriated condition of the protecting layers of epithelia. In discussing the cases attributable to inhalation of septic material, a preference is expressed for the theory of chemical infection as best explaining the symptoms of the disease. The rapid onset of high fever, with moderate formation of membrane, and prompt subsidence of the symptoms is considered indicative of a rapid absorption of a large amount of poison: and its equally rapid elimination and indolent course, on the other hand, with moderate fever, is considered indicative of a continuous absorption of moderate amounts of the poison, and correspondingly slow elimination.

Dr. Jacobi justly deems the disease highly contagious. He assures us that any operation on the tonsils, while an epidemic of diphtheria is at its height, will be followed in twenty-four hours by diphtheritic deposits on the operated part. If this be the fact, and we cannot doubt the author's accuracy of observation, the inference is one which should become deeply impressed on the memory of every surgeon. Some interesting data concerning diphtheria in animals are discussed in connection with the subjects of contagion and incubation, which are very suggestive; and will be novel to most readers, as they were to the writer.

The symptoms of diphtheria are detailed seriatim with great circumspection, and an endeavor made to indicate their comparative significance, as far as this is practicable, as regards immediate prognosis, prospective complication, or ultimate sequence. We may call attention to the prominence given to tumefaction of the deep facial glands at the angle of the lower jaw as an absolute indication that the nasal cavities have become invaded.

The author's experience enables him to assert most positively that diphtheritic tracheo-bronchitis may occur without simultaneous implication of the pharynx. In some fifteen or more cases of this kind in which he had performed tracheotomy, he has seen the first speck appear in the pharynx on the same day or soon after; this speck spreading into a large membrane in those rare instances in which the patient survived twenty-four hours after the operation. For numerous other points of interest in connection with symptoms, the reader must be referred to the volume itself.

Dr. Jacobi ranks among those who have pointed out the fact that the character of the epithelium in the affected air passages accounts for the physical differences of the pseudo-membrane which have suggested certain anatomical variations between the morbid products of diphtheria and croup. This subject is fully discussed in the chapter on anatomical appearances.

In the chapter on diagnosis it is affirmed that pharyngeal congestion, when local, confined to one side mainly, is either traumatic or diphtheritic. Surely quinsy is a frequent exception to this dictum; not to speak of neoplasms and other occasional local disorders.

The difficulty in diagnosing membrane in the nasal passages is alluded to, and a short broad rhinoscope reaching upward to the bony structure of the nose is recommended as highly serviceable for this purpose. Evidently an anterior nasal speculum is alluded to, but the term rhinoscope, though philologically correct, is liable to mislead the reader. Placing a hand mirror in front of the dilated nostril, and looking at the image of the passage in that way, may be mentioned as a desirable method of nasal inspection, at times, while the position behind the patient or to his side, secures safety from personal contact with diphtheritic products in case their forcible extraction is undertaken. Our author, indeed, speaks of boring through dense masses in order to secure passage for the injections by which they are to be driven away.

Dr. Jacobi believes in the identity of croup-proper with diphtheria, but waives any special argument on that point on the ground that his is not a polemic book; and refers to the general text for the reasons that confirm his opinion. The chapter on prognosis is a short one, in which its gravity and uncertainty are freely acknowledged.

The chapter on treatment deals in extenso with the majority of remedies and methods of management by which exceptional success has been claimed, and briefly of a great number of remedial agents the asserted value of which remains disproved or in doubt.

As this is the most important chapter of the book, we condense sufficient from the author's own summary to indicate the strong impressions derived from his own exceptionally extensive experience. In the first place, every case should be treated on general principles. Procrastination is dangerous. Alcohol in apparently large doses (fl. ℥ ij.–xij. per diem) is a very important adjuvant and remedy. Debilitating complications, such as diarrhea, must be stopped instantly. Mouth and neck must be kept in a healthy condition. Catarrhs of mouth and pharynx require the use of potassium or sodium chlorate, in doses not exceeding one scruple daily for a child, and two drachms for an adult; the single doses being small and frequent, every hour, half-hour, or quarter-hour; large doses being dangerous, often resulting in nephritis, and occasionally proving fatal. For local diphtheria, local disinfection is the main indication. There are no means of effectively disinfecting the blood. While the inhalation of steam may be efficacious, it may prove dangerous by excluding oxygen and overheating the apartment. Large draughts of water and the internal and external use of ice are beneficial in suitable cases. The usefulness of lime-water [fumes of slaking-lime also?] and lactic acid has been greatly overestimated.

Chloride of iron is one of the most reliable agents, but small doses at long intervals are useless. A child, a year old, must take at least one drachm daily, and a child of three or four, from two to nearly four drachms. The chloride is to be mixed with water and glycerine in various proportions, so that a dose is taken from every sixty to every ten minutes as may be required; and thus the local applications to the throat become almost superfluous. Potassium or sodium chlorate (ʒ ss.–i. daily) may be added with advantage.

Membranes must not be torn off nor removed, unless they are nearly detached. Caustics are contra-indicated except where their application can be limited to the diseased surface. Persistent disinfection of pharynx and nares is requisite in diphtheria of the nasal passages; the tendency to sepsis forbidding a long intermission. They must be continued day and night for one or several days, without reference to the amount of glandular swelling.

Laryngeal diphtheria proves fatal in almost every case, unless tracheotomy be performed; and less success follows the operation, the greater the septic character of the case or the epidemic.

Emetics, such as zinc, copper, or turpeth mineral, are useful for the removal of half detached membrane.

In perusing this volume, while noticing the tenacity with which the author clings to personal observations, we are gratified at all absence of intimation that early recognition of the disease and its prompt attendance renders its treatment a simple affair or an assured success. He claims no special skill which enables him, with a proper chance, to save all his cases of diphtheria, or even the preponderant majority of them ; but asserts that each case must be managed according to its own indications—a certain plan being kept in view, corresponding to the received opinions of the nature of the disease and its method of destroying life.

For these and similar reasons, we would urge our readers to procure the volume for themselves, to peruse it carefully, and give it an honored position on the library shelf as a work creditable to its important subject, its learned author, and the profession of America. J. SOLIS-COHEN.

ABSTRACTS.

PREPARED BY J. FEWSMITH, JR., M.D., Newark, N. J.

1. Meyer: Results of Vaccination (*Vierteljahrschr. f. Dermat. u. Syph.*).—DR. LOTHAR MEYER divides the results of *re*-vaccination into four degrees: 1st. Complete re-vaccination, and all the pustules filled with a clear fluid first, and reaching an average acme on the fifth to seventh day. 2d. Partially dry pustules, with somewhat purulent contents, and reaching their acme on the fourth day. 3d. Completely dry pustules of the exact size of earlier vesicles, and reaching their acme on the second or third day. 4th. All irregularly constituted forms of inflammatory products (scabs, etc.), down to the simple healing prima intentione of the vaccination wounds.

The results of re-vaccination of children twelve years old was as follows: Out of 1,115 children vaccinated, 927 were successful, and 188 failures (83.2% and 16.8%); and out of 3,475 pustules, 1,560 belonged to the first class, 674 to the second, and 1,241 to the third; and there was no difference in the results of vaccination from arm to arm, and those where glycerin-lymph was used.

2. Wertheimber: Scarlatina (*Aerztl. Intelligenzblatt*, 49, 50).—DR. A. WERTHEIMBER finds that, according to various authors, the incubation's stage of scarlatina varies from 8 days to 3 to 4 weeks. W. had 18 cases in which the period of incubation could be definitively fixed. They were in children from 3½ to 9 years old. In 11 the incubation's duration was 4 days; in 6, 5 to 6 days; and in 1, 2½ days. Henoch reckons on 4 days, but has seen the duration as short as 36 hours. From all this, W. concludes that this period rarely, if ever, extends over 8 days. There is no prodromal stage. The most constant initial appearances are the affection of the throat, vomiting, rarely fainting, in younger children convulsions, very rarely diarrhea and dysentery.

A delay in the appearance of the eruption occurs only when some other disease complicates the scarlatina. W. mentions especially among the complications of scarlatina, the so-called scarlatina-rheumatism, which usually comes on after the exanthema has run its course, but sometimes occurs on the 3d or 4th day of the disease. It attacks by preference the fingers, hands, and cervical vertebræ. The swelling, redness, and tenderness are slight, the pain spontaneous, and increased by motion. Its fleeting character is characteristic. The whole complication lasts 3 or 4 days, runs its course without much increase of the fever unless it is accompanied by endo- or pericarditis or pleuritis, which happens much more rarely than in idiopathic polyarthritis of children. It rarely leaves any permanent trouble. As to treatment of scarlatina, W. claims, in the first place, that salicylic acid and its salts should be entirely avoided, as they irritate the kidneys. In the hydropathic treatment, he prefers wet packs to cool baths. These packs he repeats 4 or 5 times a day, each one being renewed 3 times at intervals of 10–15 minutes or continued till the temperature has sunk 2°. The temperature of the water for strong, older children should be 16–17° R. (68–70° F.): for younger and weaker children 18–20° R. (72–77° F.). Cold douchings he only recommends in the first days in deep coma or wild delirium. Where the indications are not simply to lower a very high temperature, we should abstain from large doses of quinine and the more severe hydropathic procedures, to which, however, the "packs" do *not* belong.

3. Bouchut: Cerebral Tuberculosis (*Gaz. des Hôp.*, 149–150).—Bouchut publishes 3 cases which are interesting on account of the localization of the cerebral lesions.

1. A case of tubercle of both thal. optici which had during life given the symptoms of paralysis agitans and in which an affection of the medulla has been guessed at. A 3½-year-old boy was admitted 6 weeks before death. Four months before he was said to have become suddenly "swollen up." After that he was unable to walk, could not co-ordinate the motions of his arms, and ever since had had a trembling, more marked on the right side. The intelligence was dimmed. Two weeks before death he lay on his back, his head thrown back and his gaze fixed, understanding nothing which was said to him. The skin was hyperesthetic. All four extremities showed convulsive trembling. Neuritis optica of both eyes. An open abscess in regio submaxill. d. The autopsy showed on the pia mater of the cerebrum a few miliary granulations, no hydrocephalus, both thal. optici somewhat enlarged and hard, on section their tissue destroyed by deposits of tubercle, so that only a thin layer was left around them, and this was softened. Tuberculosis of the lungs and bronchial glands.

2. A case of cerebral abscess, in a phthisical girl 14 years old, running its course with no nervous disturbance and no symptoms except those of the lung trouble. At the autopsy, after removing the dura mater, an abscess could be seen through the pia mater over the first and second frontal convolutions. This extended down into the gray substance of the cortical layer of the second and third convolutions, and was about the size of an olive. The surrounding tissue was softened, the softening extending outward and backward from corp. striatum and thal. opt. to ped. cerebri sin., which latter itself was not softened, but of a yellow color. Tubercle nowhere found.

3. In a third child, who had died on the 12th day with the symptoms of meningitis, having had no paralysis and no convulsions, there was found at the autopsy a large tubercle in the cortical substance immediately in front of the arciform fibres of Rolando, and another large tubercle in the left portion of the thal. opticus.

4. Fœster: Report of Cases of Paralysis in the Dresden Children's Hospital (*Jahrbch. f. Kindhlkde.*, XV. B., 3 u. 4 H.).—Dr. R. Föster furnishes an article made up almost wholly of simple reports of cases, but from which we may draw a few interesting conclusions. All cases of paralysis of any form which were treated in the hospital during two years are included in the report and are carefully arranged in special groups, the division of the spinal forms of disease being very exact.

Under the head of CEREBRAL HEMIPLEGIA six cases are reported. In them all the cerebral origin was clear, though the exact etiology differed; traumatic and non-traumatic hemorrhage, cerebral tubercle, and meningitis being all represented. The first point on which Dr. F. differs from other observers is in regard to the shortening of the paralyzed extremities. He claims that the diminution of growth in length is of constant occurrence, but, even in long continued paralysis, does not reach a high degree. Second, he claims that in cerebral hemiplegia in children there is always, within a few weeks after its occurrence, a muscular atrophy of the paralyzed extremities, but that later on this shows very little increase. That these changes are not due to simple want of use of the limbs he shows from the fact that they take place in cases of cerebral trouble where the disuse of the parts is only very temporary, and again because in other troubles, where there is long continued disease of the parts, they do not occur, especially the cessation of growth in length. In none of F.'s cases did the muscles assume a lax, doughy character, but in most of them contractions occurred which were relieved by the galvanic current. The sensibility and the vasomotor relations of the skin were not much disturbed.

F. then relates two cases of congenital cerebral hemiplegia, in which we find nothing of particular importance.

Under the head of ENCEPHALOMYELITIS DISSEMINATA (multiple Herdsclerose) we find one clear case to add to the few well established ones and several doubtful ones already reported. Hoedemaker, Erb, Charcot, and others consider this one of the rarest diseases of childhood, and it is interesting to have even one so clear a case as the present one to add to its statistics. Ten cases of SPASTIC PARALYSIS are reported, with two careful autopsies. This is a great addition to the data of this disease, and the author is warranted in drawing several strong conclusions. He admits that in some of these cases there was more than a simple, primary lateral sclerosis and that indeed in one of them the lesions were mostly cerebral, but from the symptoms and course he believes himself justified in placing them all in this list (some of them we think ought to be placed under the head of *secondary*, rather than *primary* lateral sclerosa, but they still belong to the same group). Now for the conclusions, in short. 1. Spastic paralysis in childhood is in most cases associated with idiotism or at least intellectual weakness. 2. Spastic P. of children in most cases exists from birth, but occasionally comes on, with other brain symptoms, idiotism, etc., later in childhood. 3. It appears to be always bilateral, but one side is usually more affected than the other. 4. In most cases the upper extremities are not at all or only very slighly affected, though there are exceptions to this rule. 5. The muscular development of the body is usually slight, the growth in length undiminished. 6. The sensibility is undisturbed. 7. The reflex irritability is in general, though not regularly, increased. 8. The Faradic muscular irritability is undisturbed. 9. Slight vaso-motor disturbances sometimes occur. 10. The constant current cannot cure, though it may sometimes check the disease.

Only four cases of SPINAL PARALYSIS (Poliomyelitis anterior acuta) are reported—a small number when compared with the whole number of cases mentioned, and especially the number of cases of *spastic* paralysis. This may be accidental, it may be that these cases went rather to the dispensary than the hospital, or it may be that cases of spastic paralysis have heretofore been overlooked or classed as spinal. F. makes the following points. 1. The paralysis was either "sudden as a flash" or preceded by some days' sickness. 2. Atrophy of the paralyzed extremities occurred in all cases. 3. The growth in length was in some cases not at all affected. 4. The points of greatest atrophy do not always correspond with the points of greatest vaso-motor disturbance. 5. There was in all cases a decrease and in some an absolute loss of response to Faradism.

Three cases of *myelitis from pressure* were all that occurred out of twenty-six cases of spondylitis, a very favorable proportion. Beside these, there was one case of myelitis, one of meningitis spinalis traumatica, one of hysterical paralysis, three of diphtheritic and one of facial paralysis. This makes altogether thirty-four cases, of which ten, a large proportion, are classed as spastic paralysis.

5. Kormann: Artificial Nourishment of Sucklings in the first Ten Weeks of Life (*Jahrbuch f. Kindhlkde.*, XV. B., 3 u. 4 H.).—This subject has lately been attracting a great deal of attention in Germany, and a special committee has been appointed by the scientific societies to investigate it, one of the first fruits of which is this article from DR. KORMANN. We have already published an extract of an article by Dr. Dornblüth, and the present one does not bring up any very particularly new points. The author starts with the importance of urging upon mothers the importance of nursing their own children and, where that is impossible, getting a good wet-nurse. These two failing, he makes a third point, that no starchy substances should be given in the first ten weeks, but that our reliance must be on the milk of domestic animals. Mare's milk he claims is the best, but this being hard to obtain, we must usually fall back on the cow. This branch of the subject he divides into two parts: 1st. How to obtain a cow's milk which is fitted to the nourishment of a suckling; and 2d. How to treat such a milk in order to put it in the best form and consistence for use.

Under the first head are two points: 1st. We must have the best quality of milk; and 2d. This must be delivered unaltered at the house where it is to be used. To attain the first requisite, he would have in each city dairy-farms under strict governmental, veterinary, and medical control. The best races of animals should be selected, they should be kept in stall and fed on regulated diet and carefully watched. Under the next head he has numerous projects, of which the best seems to be that the milk, obtained at the farms under this strict control, should be sent in locked flasks to the consumers, and that they only should have the keys to these flasks. Great precautions should be taken to insure cleanliness, not only of all vessels used, but of the hands of the milkers, the cows' udders, etc. He discusses Dornblüth's plan of treating the milk by cold, and claims that it is good, but seems to think more of a plan of heating the milk in the sealed flasks and so delivering it. There already are a few institutions in Germany where this carefully watched "children's milk" is sold, and the author claims a wonderful immunity in such districts from summer diarrhea, etc. The use of such milk is principally a matter of cost, but even with the increased cost over milk it is cheaper than the various less useful surrogates.

Under his second principal heading are two divisions: 1st. How to take care of the milk after it reaches the consumer; and 2d. How to treat it to make it most closely resemble woman's milk. Under the first head, he believes in boiling the milk as soon as it reaches the consumer (a point in which he would be opposed by some good authorities). He claims that this at least avoids all micro-fungoid growths. After boiling it should be kept in good, cool air and in tightly closed vessels. All vessels used, especially the nursing bottle and its nipple, should frequently be carefully cleaned with solution of soda. As to the second point, we must first regulate the temperature to make it as nearly as possible that of the human body. We must also add water and sugar and attempt to correct the clumpy coagulation of the caseine. Jacobi's barley water he claims is good, and he uses it in the following proportions:—In the first 4 weeks, 1 pint milk : 4 pints barley water; from 5th to 8th week, 1 : 2; from 8th to 12th week, āā. To each 100 grm. of milk mixture he adds a teaspoonful of good cane sugar, prefering this to the milk sugar, which is apt to become sour. He mentions Sulzer's albumin pepton and gum Arabic, gelatine, etc., as used for the same purpose as barley water, but has had no practical experience in them. Then he discusses lactin, or lacteine, and approves of it.

When good "children's milk" from the cow is not to be had, he sometimes uses condensed milk, but prefers Biedert's cream-mixture. In those cases in which, on account of diarrhea, no milk diet can be used, he advises mucilaginous drinks, egg preparations, and especially Biedert's "cream-conserve," prepared artificially without a trace of real milk or cream.

6. Steffen: Treatment of Typhus in Children (*Jahrbch. f. Kinderheilkunde*, XV. B., 3 u. 4 H.).—DR. A. STEFFEN compares the action of three remedies, cold water, quinine, and salicylate of soda as exemplified in 178 cases of typhus, of which there were 148 cases of typhus abdominalis and 30 cases of typhus exanthematicus. The quinine and cold-water treatment were in some cases combined, while in the cases treated by the salicylate the water was rarely used.

I. TYPHUS ABDOMINALIS:—(a) *Cold-water treatment.* Out of the 148 cases, 48 cases were treated by cold water, principally baths. At first the baths were given cold (65° to 75° F.), but this was so unpleasant for the patients and produced so great hyperesthesia of the surface that later the baths were commenced at a temperature of 95° F., and cooled down while the patient was in them to 80°–75° F. The patients remained in the baths 15 to 20 minutes. The temperature of the patients was taken every one to three hours, and as soon as it reached 103° F. another bath was given. Between the baths, and in some cases of cerebral congestion during the baths, cold applications were made to the head. Of the 48 patients, 5 were under 6 years of age, 30 between 6 and 12 years, and 13 over 12 years. In considering the duration of disease to the complete cessation of fever, the calculation is from the day of admission to hospital. Ten of the 48 cases are left out in the following tables, 5 ending fatally and 5 because records were incomplete. Of the remaining 38, 17 reached the end of the fever before the 7th day = 44%. The author gives long tables showing number and temperature of baths in each case, etc. The first point noticed is that often the first baths increase instead of decreasing the temperature. The cold baths do not lower the temperature so much as the warm baths afterwards cooled. By the latter, the temperature was lowered from 1° to 3° on an average. The nearer the disease was to its close the greater was the decrease of temperature gained by a bath. In the great majority of cases the fever stopped suddenly, in a few gradually. Sex and age had no apparent influence. As to the pulse, the author agrees with other writers that in older children the frequency of the pulse does not keep pace with the height of the temperature, while in young children the ratio is quite equal, the pulse running very high. The influence of the baths on the pulse seems to about correspond with their action on the temperature, with one exception, namely, that the pulse does not return only to normal frequency, but usually goes below it—in one case to 44, in several to 46, 48, 50. In a few days these became normal. The number of the baths and the shortness of the pauses between them seems to have this effect on the pulse, rather than the low temperature of the water. The baths seemed to have no effect on the delirium. As soon as the appetite returned, strength and flesh were rapidly gained. "The number and temperature of the baths seemed to have less effect on the duration of the disease than the character of the morbid process and individual peculiarities." In only one case out of this list did a relapse occur. Out of 48 cases then, 43 recovered and 5 died. One of the latter had old tuberculosis and might be left out of the calculation. This gives a mortality of 8%. One girl died with noma in the cheek, another with diphtheritis of vulva and rectum and esophagus and with peribronchitis, another with pneumonitis and nephritis, and the other from diffuse bronchitis and lobular pneumonitis. It is a question to what extent these lung complications were caused by the cold-water treatment. The author believes this to be one of the risks in this course of proceeding, and states that such complications occur oftener under this method than under the use of the salicylate. Other contra-indications are the opposition of the patient and the collapse which occurs from too frequent or too long-continued bathing.

(b) *Treatment with sodii salicylate.*—The general course was the same as with the baths. As soon as the temperature reached 103° F., a dose of the drug was given—to children under 1 year, 0.5; to older ones, generally 1.0. Out of 100 cases, 25 were under 6 years of age, 54 between 6 and 12 years, and 21 over 12 years. In the following calculations, 12 of the cases are left out, 6 fatal cases, and 6 incomplete. In 52 of the remaining 88, the cessation of the fever occurred by the 7th day after admission = 60%. The tables of doses, temperature, etc., show that in 46 cases, not more than 10 grams of the drug was given; in 23 cases, from 10 to 20 grams; and in the others, from 20 to 40 grams. In only 4 cases was more given. The first characteristic of the action of the drug is that it does not so rapidly lower the temperature as do the cold baths. Second, the temperature, when lowered, remains so longer than under the other treatment. The amount of decrease was on an average from 1° to 3° F. The cessation of fever in most cases took place suddenly, and the frequency of the pulse and respiration fell at the same time. In many cases the pulse fell below the normal, but not so often or to such a degree as in the cold-water treatment. This action of the pulse seemed therefore to be a part of the disease, but to be increased by the water treatment. The relation of the pulse to the fever varied in these cases as in the others, according to the age of the child. Only one relapse occurred. Now, looking over our results, we find out of 100 cases 6 ending fatally. 3 of these the author cuts out on good grounds, and that leaves 3 deaths out of 97 cases, certainly a good showing. It remains to notice what evil accompanying effects the salicylate may have. To avoid the burning in the throat and pharyngeal catarrh which it sometimes causes, it should be given largely diluted in sweetened water, or in capsules, or, if necessary, per rectum. If it causes vomiting, a few doses may be given per rectum, and it will then probably be retained by the stomach. The author has never seen any irritation of the intestinal membrane caused by it, and does not believe that it increases the risk of perforation. The deafness and singing in the ears which it causes pass away when the drug is stopped. Delirium often occurs during its use, but the author believes this due to the disease and continues the drug. During the exhibition of the drug profuse perspiration often occurs. Sometimes erythema develops. These symptoms both seem to be of but little weight. Transudation into the subcutaneous tissue often occurs, and this too when no renal change can be discovered. This is one of the dangers of the drug, and at its first occurrence the doses should be diminished and given at longer intervals. With this precaution and proper care there is little danger. The amount of urine is increased. Pyelitis and nephritis are no more frequent in either the cold-water treatment or the salicylate method than in any other methods. Collapse sometimes occurs, but a little watching and the careful use of stimulants will avoid this.

From the above considerations, the author quite decidedly prefers the method of treatment by the salicylate.

II. TYPHUS EXANTHEMATICUS.—I will not say much about this. 30 cases were treated, and though only 6 were treated by the drug, yet the author feels justified in coming to the same favorable conclusions as to its use as in the other form of the disease. The treatment by quinine is not separately considered, and I regret that in none of the cases the author gives any account of the diet or of the use or non-use of stimulants.

7. Chiari: Post-mortems at the St. Anna Children's Hospital in Vienna (*Jahrbch. f. Kindhlkde.*, XV. B., 3 u. 4 H.).—The *Jahrbuch* publishes a series of interesting post-mortems made by DR. H. CHIARI, from which I abstract two in brief.

1st. *Opening of the right pulmonary vein into the right auricle in a two-year-old boy.*—The patient died of double pneumonia. During life, there were some symptoms of heart trouble, but nothing really characteristic. The autopsy showed the right pulmonary vein opening into the right auricle, a membranous defect in the septum atriorum, eccentric hypertrophy of the right half of the heart, and abnormal size of the pulmonary artery. Chiari considers the abnormal opening of the vein as primary, the defect in the septum as probably secondary, and the hypertrophy of the right heart and the widening of the pulmonary artery as certainly secondary. Similar or partly similar cases have been reported by Rokitansky, Förster, and Lambl.

2d. *Microcephalus in a six-year-old girl.*—When alive, the child was an idiot. It could stand and walk. It died of bilateral infiltration of the lungs. To show to best advantage the small size of the head, I give the doctor's tables:

IN A CHILD OF	ANT. POST. MEAS.	LATERAL MEAS.	CIRCUMFERENCE.	FROM ANT. BASILAR PROM. TO ROOT OF NOSE.
7–8 months.	126 mm.	110 mm.	366 mm.	67 mm.
2 years.	150 "	125 "	450 "	70 "
5 "	167 "	140 "	475 "	85 "
6 "	160 "	145 "	485 "	90 "
In this child.	125 "	107 "	370 "	80 "

I also add the weight of cerebrum and cerebellum as compared with the normal.

IN A CHILD OF	CEREBRUM.	CEREBELLUM, MEDULLA, PONS AND CORP. QUAD.
6 years, well nourished.	1,100 grm.	160 grm.
In this child.	403 "	112 "

8. Preetorius: Treatment of Uremia with Pilocarpinum Muriat. (*Jahrbch. f. Kinderhlkde.*, XV. B., 3 u. 4 H.).—A. PREETORIUS (Mainz) has a long and carefully written article on this subject. In his list of articles on the literature of the subject, he mentions fifty-eight names, and many of these have already written several articles on the subject. Probably no remedy has been taken up by the profession with more zeal, none more studied in a short time, than jaborandi. It is perhaps on account of the haste with which it was brought into use that there has been somewhat of a reaction against it, but now is the time for more careful study of it. I pass over the author's history of the drug, its use in other forms of disease, and the careful study of its mode of action, and come at once to its use in uremia. Demme was the first to publish a favorable account of it in this disease. Then followed articles by E. Boegehold, adding proof to the assertion of Leyden that pilocarpine does not directly weaken the heart's muscle, but acts entirely through its nervous supply ; by v. Brunn, who saw dangerous collapse from its use : by Leven and others. These were all favorable reports, but with certain drawbacks. To these the author adds a series of cases treated in the children's clinic of Prof. Kohts. He leaves out all other diseases, and also those mild cases of nephritis which occur after scarlatina, etc., and which naturally run a favorable course. He only reports cases of actual uremia, with all the stormy symptoms, vomiting, vertigo, convulsions, etc., cases such as they had in this clinic always found almost uniformly fatal. Of such he reports eleven in full. He found that in from three to five minutes after the injection of the muriate of pilocarpine, there was active pulsation of the carotids, then redness of the cheeks, then sweat, appearing first on brow, then on lips, chin, axillæ, knees, and the whole body. At about the same time sharp salivation began, which continued one to three hours. In very small children, the sialogogue action of the drug was greater than the diaphoretic. Where the edema was great, the action of the drug was not so marked, probably because of its slow absorption. No influence on the temperature was observed. The pulse frequency was at first increased, not returning to normal or lower again for twenty to thirty minutes. The author then claims that it is not only the diaphoretic action which does good, but the diuresis, which is excited either immediately after the injection or on the following days. He always found some increase in the urine, and in the favorable cases the improvement seemed to begin with this.

The dose was regulated by the age and condition of the child, and varied (in children from four to fourteen years) from 2 milligrams to 2 centigrams. In most cases, the injection was followed by nausea, and in many by repeated vomiting. In some there was slight collapse. These symptoms were, however, controlled by small doses of cognac and injections of ether, and in no case became threatening. Experience nevertheless teaches that great caution is to be used in choice of dose. It is at least better and more rational to give a second injection of 0.001 or 0.002 a few moments after a first small injection than to begin at once with the whole dose. To children of four years, not more than 0.005 should be given at the first injection, while with older children 0.01 was usually the first dose, unless they were weak or poorly nourished. From two to five injections were given in each of the cases, usually on following days. Of the eleven cases, five were entirely cured, and one was cured of the uremia, but died five months after of diphtheritis. In the autopsies of the other cases, some complications were found, and in all of them diffuse glomerular nephritis. Microscopic examination of the urine does not diagnose this condition, but the author believes that in rapid and intense cases of uremia in children it is almost always present, and that in general the diseases of the cortical renal substance are always threatening and dangerous. Summing up, he says :

1. There is no doubt that the treatment of uremia by pilocarpine offers the most favorable chances, and it is certainly advisable to give an injection of it so soon as in a case of suppression of urine we have headache, irregular pulse, and vomiting.
2. It is contra-indicated by long complications, abnormal debility, already existing collapse, and general anasarca.
3. Pilocarpine seems to have little effect in cases of glomerular nephritis, but since we cannot diagnose this, we should at least give the remedy a chance.
4. It is not only a diaphoretic, but exerts a direct influence in increasing the secretion of urine.

9. Kormann: Intrauterine Defects and their Relation to Spontaneous Amputations (*Jahrbch. f. Kinderhlkde.*, XV. B., 3 u. 4 H.). —DR. ERNEST KORMANN makes an attempt in this article to divide more exactly, etiologically, the abnormalities of fetal development. He claims that many cases have been included under the head of spontaneous amputation in utero which really did not belong there. He makes three classes. 1st. Those in which we find laceration of the fetal skin, fragments of it, the amputated extremities, or a demonstration of the involvement by the umbilical cord. These he calls amputations by compression or ligation (*Abschnürungsdefecte*). In a second set of cases, we can find no sign of the knotting of the cord, no method in which the strangulation could have been effected. The stump nevertheless gives the appearance of an amputation, and sometimes we get a history of injury or wound of the mother. These he considers due to fracture or gangrene, and calls them, from the latter, *Brand-* (gangrene) *defecte*. But, in many cases which have heretofore been classed in one of these two categories, no amputated part can be found: there is no sign of umbilical strangulation; no history of any injury or wound of the mother. These two classes constitute the intrauterine amputations. But any one who carefully studies the literature of the subject will find that many cases reported under this head do not really belong there. We read, for example, of a stump with rudimentary development of the parts belonging below it—a 3 cm. long forearm with rudimentary fingers. Such cases, the author claims, are not amputations, or even "gangrene-defects," but "*development defects*" (Bildungsdefecte). It is this third class that the author desires to bring into consideration and prominence. He examines, in his article, several reported cases of intrauterine amputation, and shows, by the rudimentary development of the parts, etc., that they certainly did not belong to the first class, probably not to the second class, but almost certainly to the third. He then relates two cases which would seem to almost demonstrate his point. He opposes the position of Simpson, who claims that up to a certain point in fetal life there may be a redevelopment of amputated parts, and claims that in the cases which he puts in the third class, the rudimentary development of parts belonging below the point of apparent amputation shows that we have here to do, not with intrauterine or spontaneous amputations, strangulation-defects; but with abnormalities of development, formation-defects.

10. Alfred Scheffer (Strassburg): **A Case of Cancer of Stomach and Spleen in Children** (*Jahrbch. f. Kindhlkde.*, XV. B., 3 u. 4 H.).—Statistics show that primary cancer of the stomach forms about one-third of all cases of cancer, that it occurs most frequently between the 50th and 60th year, and that before the 30th year it is a great rarity. In looking through all works on children's diseases, the only mention we find of cancer of the stomach is the remark that "in diagnosing gastric diseases in children, malignant growths may be left out of the question." One case of cancer has been reported in the first decennium, in a boy 1½ years old, but whether the primary origin was in the stomach was not stated. The same may be said of the only case on record in the second decennium, Dittrich's, in a 19-year-old boy. From then on the number gradually increases. Dr. Scheffer now adds to the statistics of the subject an interesting case, occurring in a 14-year-old boy. The symptoms during life were complicated, and pointed mostly to cancer of the spleen, but the autopsy, made by Prof. von Recklinghausen, left no doubt that the disease was of gastric origin and the splenic affection secondary. The author devotes a great deal of space to show how, after a careful diagnosis by exclusion, the conclusion was reached that the case was one of primary cancer of the spleen, the splenic symptoms entirely overweighing those from the stomach. There was little vomiting and not until just before death any hematemesis. It was only in the autopsy that it was clearly shown that the disease had commenced in the cardiac portion of the stomach as an encephaloid cancer, had ulcerated through the wall of the stomach, making an opening 4.5 cm. in diameter, and had destroyed and involved nearly the whole of the spleen. Without going into particulars of the case or of the interesting autopsy, I simply give the author's conclusions:

1. Cancer of the stomach may occur at any age.
2. In this case, there was primary cancer of the stomach at the fundus.

In the course of the disease, the spleen was affected and almost wholly destroyed. This is the first case on record where, in childhood, a cancer of the stomach has developed into cancer of the spleen.

3. The symptoms from the side of the stomach may, in a combination of this kind, tread so in the background that during life no sure diagnosis of gastric cancer can be made, but the whole picture may be that of splenic disease.

11. **Dr. Oscar Silbermann: Scleroderma** (*Jahrbch. f. Kindhlkde.*, XV. B., 3 u. 4 H.).—Rare as scleroderma is in adults it is still rarer in children. In the literature of the subject are to be found reported some twenty odd cases, four or five of which must be considered as doubtful. The present case occurred in a 5-year-old girl, child of healthy parents, and up to this attack always healthy, with the exception of chronic tonsillitis and pharyngitis. In October, 1879, the child came into the author's hands, complaining of difficulty of swallowing and pain in the limbs. Examination showed redness and swelling of the posterior pharyngeal wall. On the next day a scarlatina-like exanthema broke out on the breast, abdomen, and upper extremities, but not on the neck. The urine showed traces of albumen. Against the natural first thought of scarlatina spoke the fact that there was no eruption on the face or neck and that the temperature was only 100.7° F. The next day showed that it was not scarlatina, for the eruption, the fever, and the albumen had all disappeared. Instead of these, back of the mastoid process on either side, were glandular swellings as large as goose eggs, while the skin, both of neck and body, showed nothing abnormal. Three days later, there was marked swelling of the eyelids and the breast muscles, and the child complained of drawing and pricking pains in the arms and breast. At this point a diagnosis was made of trichinosis. The author claims that he was justified in this by the symptoms and the history, much raw pork having been eaten by the child. In none of the cases of scleroderma on record is there any report of such initial symptoms. In most cases the disease has been first seen when more advanced. In one, swelling of the forehead and eyelids was mentioned. In the beginning of the second week, however, the diagnosis was cleared up. All the characteristic symptoms of scleroderma set in, stiffness (Starre) of the face, the neck, the breast, the arms, the legs. The picture was so sharply drawn that one could make the diagnosis from a distance, for one who has once seen the benumbed and expressionless appearance of the face in scleroderma can mistake it for nothing else. So far I have given in full the author's description of the case, as it is one of the fullest on record of the first commencement of this disease. His further detailed history I pass over, except to pick out some of the peculiar points. The surface temperature during the whole sickness was subnormal (about 97° F.). The cutaneous sensibility was decreased on the arms, the breast, and the thighs. Both these facts may be explained by the tension of the skin, compressing the cutaneous vessels and nerves. For the same reason the radial and temporal pulse could not be felt. The femoral pulse showed a frequency of 96. This excessive tension continued unchanged, especially in the face, neck, and upper extremities for four weeks, and it seemed as if there could be nothing favorable in the prognosis, but in the fifth week there was a change for the better, the tension decreased, and in six months

the child was well, whether the treatment (sweat-baths, iron, and, on recommendation of Prof. Simon, nitrate of silver) had anything to do with this the author does not decide.

The etiology of scleroderma is dark, and the universal "catching cold" is brought into use here as in so many other places. In this case two causes might be mentioned, the *anemia* which had existed from birth, and the *chronic pharyngitis and tonsillitis*. In several cases on record, there was chronic throat trouble, and some have believed that the influence on the cervical glands and through them on the general lymph-system has been the causal connection in this trouble. Others attribute it entirely to trophic disturbances from the central nervous system. As to what the anatomical changes are we also find various opinions. The author claims that it can be one of only two things, a product of lymph-stasis or a chronic (subacute) inflammation. Kaposi is the chief supporter of the first idea. The author holds the other, and supports his position with well chosen arguments. He then passes to a consideration of the twenty-seven cases (in children) he has been able to find in the literature of the subject. In a carefully prepared table he notices the age, the parts affected, duration, result, etc. 6 cases were under 1 year of age, 10 under 10 years, 8 under 16 years, and 3 under 17 years. Face, neck, and upper extremities are most frequently affected. These cases show that in comparison with adults the prognosis in children is good. Taking the 24 which really belong to childhood, we find reported 3 deaths, but not one of them directly from the disease. Of the remaining 21, 14 ($66\frac{2}{3}\%$) were entirely cured. Some marked as unimproved no doubt were cured later. This is much more favorable than any statistics for adults. The author explains this by the lesser normal tension existing in the skin of children, and in closing makes two points: 1st. The intensity of the tension of the skin in children in scleroderma is never so great as in adults; and 2d. Resorption of the edema is easier because this lesser tension does not so affect the vessels, and more rapid because tissue change in general is more rapid in children, the circulation is quicker, the lymph-glands larger and more active, and the watery portion of tissues greater than comparatively in adults.

12. Parrot: Hereditary Syphilis and Rachitis (*Le Progrès Médical*, No. 31, 1880).—DR. M. J. PARROT has made the relation of hereditary syphilis to rachitis the subject of very close and extended study, and in this lecture makes some very decided statements. Hereditary syphilis, he says, develops in a perfectly definite manner and follows a series of regular transformations. There exists an exact relation between the stage of the disease and the period of infantile life, so much so that, given the age of a child affected, if he has an eruption one can describe it with exactitude without seeing the child; or, on seeing a portion of the diseased integument, one can tell quite surely the age of the child. Again, if an affected child dies, the post-mortem appearances can be foretold; or, from the post-mortem appearances the clinical history can be given. Of this fixity and regularity in the morbid process the skeleton bears the most constant, profound, and characteristic marks. The stage of the disease is here marked with an almost mathematical exactness. Among these pathological forms the last one, chronologically, is rachitis. Hereditary syphilis is a disease of evolution. From observation of clinical and anatomo-pathological facts Dr. Parrot has gradually become convinced that every case of rachitis proceeds from only one source, that is, hereditary syphilis.

13. Simon: Infantile Therapeutics—Mercury (*Le Progrès Médical*, No. 29, 1880).—M. J. SIMON in this lecture advocates the use of mercurial preparations in a variety of diseases. He says that in the local treatment of mucous patches the acid nitrate of mercury is by far the best caustic we possess. Its action is slow but effective. The applications are to be made every second or third day. In the constitutional treatment of secondary symptoms, the mercurial medication is to be combined with strict hygienic and tonic treatment. Iodide of potassium is worse than useless in this stage of the disease, as it is likely to add to the gravity of complications which may arise. Inunction is a speedy and effective method of administering mercury in these cases. When tertiary symptoms appear it is time to give the iodide of potassium, and the mixed treatment is then to be employed. Gibert's syrup is the favorite preparation. [This preparation contains from $\frac{1}{7}$ to $\frac{1}{3}$ of a grain of hydrarg. iod. rub. and about 8 grains of potass. iodid. to each spoonful of the syrup.] Mercury is useful in a great number of parasitic affections. In favus, after the crusts have been removed, the part is washed morning and night with warm water and soap, and then a solution of corrosive sublimate, 4 to 1,000, is applied, followed by an application of turpeth mineral ointment. Epilation every second week during a few months is combined with this treatment. From time to time the mercurial applications are replaced by iodized glycerine. Pityriasis versicolor is treated with sublimate lotions and sulphur ointment (ʒ i. ad ℥ i.). Among intestinal worms oxyures are the most rebellious to treatment. For these santonin is given ($1\frac{1}{2}$ grms.), followed immediately by about 8 grains of calomel. A couple of times a week the rectal mucous membrane is anointed with the following ointment: ℞ Ung. hydrarg. (double), gr. 10; Camphor, gr. 2; Adipis, gr. 30. M. In the treatment for other varieties of worms, the remedies are to be followed by the same dose of calomel. In pruriginous skin diseases, when the itching is severe, frequent applications of the sublimate lotion, 4 to 1,000, are very useful. The ointment of the red oxide of mercury (grains 8 ad ℥ i.) is a powerful remedy in chronic eczema and the various squamous affections. In the various congestive and inflammatory conditions calomel is useful as a purgative in doses of 8 grains, and as an antiphlogistic in repeated doses of $\frac{1}{6}$ grain. In ozena the local treatment consists in injections, several times a day, with carbolized water, 4 to 1,000, followed by insufflation of a powder composed of equal parts of calomel and sugar. After several days, the injections are made with sublimate lotion, 8 to 1,000, and powdered iodoform is insufflated.

14. Rochelt: Cephalocele (*Wiener med. Wochenschrift*, No. 39, 1880).—E. ROCHELT reports the following case of hydrencephalocele. A newborn female infant had in the region of the posterior fontanelle a tumor about as large as its head. The circumference of the head was 30 cm., its diameter 10 cm. The greatest circumference of the tumor was 28 cm., its longest diameter $10\frac{1}{2}$ cm. The tumor was attached by a pedicle, and was covered with normal, movable skin. It was distinctly fluctuating, translucent, not pulsating, and did not enlarge to any extent when the child cried. The pedicle was of doughy feel, and at this point a distinct oval opening, bounded by smooth bone, could be felt; this corresponded with the posterior fontanelle, and extended to near the occipital protuberance. The child was apparently well, and there were no cerebral disturbances. As the child increased in size the tumor also grew, and a protecting bandage had to be applied. The parents were anxious to have the tumor removed, and Dr. Rochelt had decided on a method of operation, when the child was taken to another surgeon, who removed the tumor by ligature. The child died from hemorrhage from the pedicle after the tumor had fallen off, which happened on the third day. The tumor consisted in great part of cerebro-spinal fluid, and contained a small piece of cerebrum. The opening in the cranial bones was about one inch in diameter. Dr. R. thinks operation under Lister's method is justifiable in these cases : 1st. When the hydrencephalocele is large, the protecting bandage cannot give sufficient security, and the child is always in danger, the tumor generally ruptures, and then the patient rarely recovers. 2d. When the tumor contains only cerebro-spinal fluid, or at most, only a small part of brain substance. Distinct fluctuation, translucency, and the large size of the tumor are important points in the diagnosis of meningeal hydrencephalocele ; true encephalocele does not become so large, and pressure on the fluid tumors does not produce such marked symptoms of cerebral disturbance as in case of encephalocele. The more brain substance there is in the encephalocele the smaller will be the cranium. 3d. The possibility of cure by operation depends on the size of the opening in the bone. If this is very large, it will be difficult to retain the replaced brain-tissue. If it is small, the reposition of the brain substance may be more difficult, but its retention is sure. Again, the age of the individual is of great importance, success being more likely to occur in children when the sutures have not yet united. The operation Dr. R. intended to perform in the above case is as follows : Under spray the tumor is to be punctured, and the cerebro-spinal fluid drawn off ; then, before proceeding farther, the amount of brain substance in the tumor can be determined, and perhaps replaced in the cranial cavity. Now, following the strictest antiseptic principles, the soft tissues down to the dura ought to be divided; the dura, too, comprising the sac is next divided, and any brain substance replaced in the cranial cavity ; a semilunar piece is excised from each side of the divided dura, and the edges then united with catgut sutures. A drainage tube is then inserted to carry off the cerebro-spinal fluid which would otherwise accumulate and prevent union, and the integument is then united by sutures, a piece being first excised to adapt the flaps. If the brain cannot be reduced, an encephalocele is left.

15. Unruh: A Case of Pneumonia Migrans (*Jahrbch. f. Kindhlkde.*, XV. B., 4 H.).—DR. UNRUH (Dresden) reports the case of a 4½ year old child of healthy parents who sickened suddenly, on the evening of the 19th of March, 1880, with violent fever, repeated convulsions of the face and upper extremities, and one attack of vomiting. Examination in the morning showed—a gracefully built but muscular child, very red countenance, temperature 103.6° F., pulse 128, respiration 36. There was slight stiffness of the neck and tenderness of the cervical vertebræ, and during the examination repeated twitchings of the face and upper extremities.

On the back at apex right side a short percussion sound and sharp respiration. Ordered cold applications to head, Priessnitz's bandage to chest, and calomel. By evening, pneumonia of the right upper lobe had developed, with temperature of 104.5° F., and pulse of 144. This was distinguished from even the severest forms of this disease by the extreme obstinacy of the fever and the violent brain symptoms (wild delirium, complete absence of sleep, gnashing of the teeth, etc.). Quinine, salicylate of soda, wet packings, ice to the head, warm, cool, and finally cold baths, together with antipyretics in heroic doses, seemed to have little or no effect on the fever. Even at the point where it should spontaneously fall it continued on. On the tenth day the fever continued, the pulse was frequent and miserably weak: the emaciation and prostration were very great; there were no signs of resolution in the lungs, and now came on complete loss of consciousness, involuntary evacuations of the bladder and rectum, increased stiffness of the neck, and strabismus internus of the right eye. Under these circumstances, with the temperature 105.7° F. and the pulse 148, a bath of 60° F. was given for five minutes, with douchings with water at 59° F. This was followed by 2.5 gm. natron salicylicum (two doses in two hours). In the evening of this day, the temperature fell to normal and the pulse to 108. The night was quiet. In the morning, temperature was 101° F., pulse 124. On the right side posteriorly, the whole thorax half dull, everywhere bronchial respiration, and in the upper lobe crepitant râles. With moderate fever and with absence of the cerebral symptoms, which had marked the apex-pneumonia, the inflammation of the lower lobe followed its regular course, and in about eight days was already over, while at the apex there was still bronchial respiration and some râles. After the temperature had been normal in the morning for two days with a slight rise at evening, on the nineteenth day of the sickness it rose again to 102° F., with a pulse of 136, and a pneumonia developed in the lower lobe of the left side. This ran a favorable course, and in five days there were no signs of lung trouble except some bronchial râles. In spite of this the temperature did not fall but rather rose, and the child, in spite of good appetite, did not seem to gain. This was explained on April 15th (twenty-sixth day) when, after a temperature of 103° F. on the evening before, a rich rubeola eruption broke out. Infection could only have taken place eleven days before, since on that day only the child had been with its sister who had had rubeola. The disease ran its regular course. After this, convalescence was uncommonly rapid, so that by May 10th the child was well and out.

16. Juhel-Renoy: Hemiplegia Spasmodica (*Le Progrès Méd.*, 39).—Ed. Juhel-Renoy exhibited at the Anatomical Society a specimen from a child which, when six months old, began to have very violent and frequent convulsions. The child was never able to walk, always had a weakness of the left side, and, when three years and eight months old, became hemiplegic on the left side. The left hand was bent toward the forearm and contracted in the shape of a claw—extension of the fingers with flexion of the last phalanges. Left foot abducted, knee somewhat flexed. The intelligence of the child when nine years was very slight, speech very bad. The child had frequent attacks of crying and whining without apparent cause and during them seemed partially insane. Death took place from exhaustion, and at the autopsy there was found: under the dura mater of the right hemisphere of the cerebrum, a layer of gelatinous serum, while the hemisphere itself was one-quarter smaller than the left, atrophied, sclerosed, and the convolutions of not more than half size. Most markedly atrophied were the *ascending* parietal convolution, the *upper lobe* of the parietal convolution, the upper part of the small lobe of the gyrus fornicatus, the foot of the third convolution. All these parts were of a red color. Besides this there was atrophy of the left lobe of the cerebellum, less marked than in the cerebrum--spinal cord normal.

The case is instructive because it shows the functional importance of the ascending parietal convolution for the upper extremities and of the upper parietal convolution for the lower.

17. Gaucher and Boureau: Partial Atrophy of the Brain (*Le Progrès Méd.*, 39).—E. GAUCHER and R. BOUREAU showed a second specimen of atrophy of the brain. The patient, when eighteen months old, in the enjoyment of hearty play, became suddenly comatose, slept four days, and on the fifth day was seized with convulsions which lasted, off and on, for twelve hours. On the sixth day the convulsions ceased, and consciousness returned, but the left extremities were contracted. No paralysis or anesthesia. On the sixteenth day torticollis—muscles of the *right* side of neck being contracted. Fourteen days after this the child died from a broncho-pneumonia following measles. At the autopsy was found: the dura mater adherent to skull—hydrocephalus ext., particularly of the right hemisphere. The fissure of Rolando and the surrounding convolutions were covered with a gelatinous, yellow deposit (old hemorrhage), the ant. and post. central convolutions were flattened in consequence of an old meningeal hemorrhage (?). The oldest pathological change was the partial atrophy of the left cerebral hemisphere, especially the frontal and sphenoidal lobes.

18. Ribbert: Abscess of the Brain caused by Oidium Albicans (*Berl. Klin. Wochschft.*, 43).—DR. RIBBERT reported an autopsy on a child twelve days old, whose mother had puerperal ulcerations. The abdominal wall around the navel was infiltrated, but without abscess formation. Throat, mouth, and larynx were covered with "thrush-membrane." Both cerebral hemispheres were full of irregularly shaped abscesses, about the size of the head of a pin, and having as contents numerous young cells, some white blood-corpuscles and degenerated tissue elements. These abscesses, R. says, could be due to either puerperal infection from the mother (micrococcic emboli), or they depended on emboli of swallowed oidium albicans. The microscope revealed *no micrococci*, but clear spores and threads of *thrush fungus*. Zenker once found at the autopsy of a man who had thrush in his throat, numerous small cerebral abscesses which consisted almost entirely of thrush fungus or oidium albicans. Wagner has also published a case where from the mouth the fungus had grown into the submucous tissue and the walls of the blood-vessels.

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ORIGINAL COMMUNICATIONS.

CHLORAL HYDRATE;
ITS USES IN OBSTETRIC PRACTICE.

IN LABOR, FOR AFTER-PAINS, IN ABORTION, ECLAMPSIA, FOR NAUSEA AND VOMITING.

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IN LABOR.

To see women, especially primiparæ, suffering in the throes of labor is so common and so much expected by the majority of physicians that they seldom do anything efficient to relieve the pain, which is certainly intense, believing that it is but the natural accompaniment of a normal process which is certain to terminate happily.

There are those, however, who, witnessing this unrelieved suffering, heartily wish that some means might be found to allay it, the more so when they consider the painless yet normal labors of some women and of almost all animals.

Should a patient present herself to the physician who would stand by unmoved during the sufferings of labor, with a fissure of the anal margin, where the suffering is not nearly so severe as in parturition, he would exert himself in every way to relieve her distress and sympathize with her at the pain she suffers during and after defecation.

Because women always have suffered in labor is no just reason why they should be allowed to suffer still, provided any means that are *safe* and efficient can be found to relieve them.

It has been urged against the employment of any anesthetic during parturition, that the mother, thus unconsciously delivered of her child, does not feel for it that amount of affection that does the woman who suffers the pangs of labor. This is at best a theory, quite unsupported by facts. Does any rational physician believe that the love of the mother for her offspring is in direct ratio to the degree of suffering endured during its delivery? I think not. Does a woman with a large family of children love that one best in whose delivery she suffered the most? Any one, be he physician or not, will answer at once that this is not so.

The only rational objections, then, to the employment of those drugs which allay the sufferings of child-birth are that the agents heretofore used for this purpose have proved either (1) dangerous in themselves, (2) dangerous in their after-effect upon the mother or child, or (3) that while relieving the pain they have retarded the labor, by lessening or doing away with the contractions of the uterine muscular fibre. Chloroform is open to all these objections, and ether, opium, and its alkaloids to the third.

The only drug known to us at present that proves itself the most efficient and the least dangerous in these cases is the hydrate of chloral when *properly* used.

First employed for this purpose in Germany, its usefulness soon became known in England, France, and at a later date in this country. In England the commendation bestowed upon it by Playfair[1] assured it a fair trial. It was, however, from the writings of Lambert[2] and Da Cunha[3] that it first became known in this country. In France, Chouppé,[4] Polaillon,[5] and many others experimented with the drug and wrote upon it. The same was done for it in Italy by Chiarlioni,[6] and in America by Du Hamel,[1] Pinkham,[2] Nathan Chapman,[3] Caro,[4] and others.

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[1] London Lancet, Feb., 1874.

[2] (Edinburgh Med. Jour.) New York Med. Record, 1870, p. 490.

[3] London Lancet, Dec. 1870.

[4] (Annal. de Gynécologie) Practitioner, July, 1876.

[5] Braithewaite's Retrospect, Jan., 1877, p. 289.

[6] (Gazette Med. Italiana Lombardi) Medical Times and Gazette, Mar. 13th, 1875.

Despite all that has been written upon it, it does not seem to have received the attention that it deserves in this country. Indeed it has not received a fair trial. Just as it began to be used there appeared in several journals the histories of cases where death had occurred (not in obstetric practice) from overdoses of this drug, and the over-timid at once ceased to use it.

I can find the record of but one case where the use of this drug in labor caused death. It is reported by Dr. A. G. Craig, of Vevay, Indiana, in the *American Practitioner*, Dec., 1879, and reads as follows:

> "On the eighth of May last, about three o'clock in the afternoon, Dr. D. of this city—a most excellent practitioner—was called to see Mrs. K., a stout and healthy-looking woman, pregnant seven months, the mother of four chidren. He found her threatened with premature labor; the pains were moderately severe, and there was slight dilatation of the os. He prescribed fifteen grains of chloral every fifteen minutes, until she had taken four doses. As the pains continued and sleep was not induced, in fifteen minutes after he had administered the last dose he gave her twenty grains—making eighty grains in all. In a few minutes she was asleep, and he went to his office. About two hours later he visited her and found her in the following condition:—Pulse 150, small, weak, and compressible, and almost imperceptible; respirations about ten per minute, inspiration occupied about one second, and expiration four or five seconds. She breathed through her mouth, it being wide open. Breathing was stertorous. She could be roused slightly by speaking loud to her, or by pinching up the skin, but she would immediately sink into a profound stupor. Her pupils were very slightly contracted and fixed, and would not respond when a bright light was brought near the eyes. Her skin was of a dark bluish or purplish color, more marked in the cheeks and around the eyes than elsewhere. There was a bruit heard over the heart and along the ascending aorta, very indistinct.
>
> I was sent for to see her in consultation with Dr. D., and found her in the condition as described above. We immediately injected $\frac{1}{120}$ of a grain of atropia hypodermically, which we repeated in fifteen minutes; we also gave her strong coffee freely, and endeavored to keep her awake by speaking loud to her, and by having her walked across the room occasionally. About one hour after I first saw her we injected hypodermically $\frac{1}{60}$ of a grain of strychnia.

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[1] Amer. Journal Med. Sciences, Dec. 1870.

[2] Boston Medical and Surgical Journal, 1871, p. 24.

[3] American Journal Med. Sciences, July, 1875.

[4] Transactions N. Y. State Medical Society.

Electricity was also resorted to, but without any apparent benefit. A drachm of whiskey was injected hypodermically every half-hour during the succeeding twelve hours. We also administered two and a half grains of carbonate of ammonium every thirty minutes. Sinapisms were applied over her spine and to her limbs, and bottles filled with hot water to her body.

At seven o'clock P.M., she was unconscious and insensible. She could be pinched or slapped, or her conjunctiva touched with the finger, without arousing her. In fact she was as profoundly anesthetized as she could have been with chloroform; and in this unconscious and insensible condition she remained through the night. At ten o'clock P.M., respirations five per minute, breathing stertorous and through the mouth, expirations four or five times as long as inspiration. Loud rattling sound in her throat like coarse subcrepitant râles. A frothy matter exuded from her nostrils constantly—a pint or two—similar in character to that which oozes from the mouth and nose of dead persons a few hours after death. Pulse 160, small, weak, and almost imperceptible. Skin cool—the purplish color rather more marked; the capillary circulation very sluggish. At midnight there was slight improvement in some of the symptoms; pulse 145 or 150, respirations ten or eleven per minute, breathing stertorous, and she remained insensible and unconscious.

At three o'clock A.M. on the 9th instant, the pulse was 140, still very weak; respirations eighteen or nineteen per minute. Breathing stertorous, and through a wide open mouth. No change in the color of the skin. Temperature, 103° Fahr. At five o'clock A.M., her condition was unchanged, excepting respirations were more frequent. At seven o'clock A.M., she presented some indications of consciousness; other symptoms much the same.

At eight o'clock A.M. labor pains set in. She would bear down when she had a pain; breech presentation. Labor progressed rapidly, and terminated in an hour: child born dead.

The placenta came away without any difficulty and the womb contracted firmly. There was very little blood lost. Temperature immediately after confinement $101\frac{1}{4}°$ F.; respirations twenty-three per minute; breathing slightly stertorous and through the mouth: inspiration short, expiration prolonged. Pulse 120, small, weak, and compressible. Color of skin unchanged. She is more conscious and sensible, says she slept well last night, and recollects nothing that transpired.

I did not see the patient during the next twenty-four hours, but Dr. D. informs me that she gradually failed. She became very restless and nervous; was more conscious but was not sensitive to pain. At eight o'clock A.M., May 10th, I again saw her. The pulse was imperceptible in the left arm, but could be felt in the right; respirations thirty-three per minute, and stertorous breathing. The bowels were tympanitic, with slight soreness over the womb. There were mucous and sub-crepitant râles at the base of the right lung and at the apex of left lung. She was conscious and sensible; failed gradually, and died at ten o'clock A.M."

In the absence of an autopsy, the fact that the patient's temperature was once as high as $103\frac{1}{4}$ ° F. and never below the normal, her consciousness after delivery, the tympanitic condition of the bowels, and the tenderness over the womb, as also the fact that she was but seven months advanced in pregnancy, and the *cause* of premature labor being unknown, and the amount of the drug used being small, it cannot be said that death was due to this drug.

Chloral when properly used in labor at full term has a threefold action; *first*, to blunt sensibility to pain (the production of a state of partial anesthesia), *second*, to hasten dilatation of the mouth of the womb, and *third*, to increase the force and frequency of the uterine contractions.

It is especially serviceable in quieting those teasing and irritating "pains" that sometimes precede by hours and even days the commencement of normal labor. They serve, especially in primiparous women, to cause worry and anxiety, to render the patient nervous, and to gradually wear out her strength without in any way advancing labor. They are, moreover, a source of annoyance to the accoucheur, for the patient, even when she has had children before, frequently mistakes these pains for those announcing the commencement of real labor, and is constantly sending for and questioning the physician.

As a producer of partial or complete anesthesia, chloral has been largely used and its administration has been carried to an extent, dangerous I believe, permitting the amputation of a limb. Bouchut[1] has used it to produce complete anesthesia in children in a large number of cases and without accident. Oré,[2] a most persistent advocate of the intra-venous injection of this drug, has used it in this way in large doses, performing various operations upon the patients while in the state thus produced. It has been proved beyond question, however, that this proceeding is fraught with danger, both from the rapid entrance of the drug into the circulation, and its local effects upon the vein and its contents (phlebitis, thrombi, and emboli).[3]

That, in sufficiently large doses, this drug will produce complete anesthesia is proven by the observations of Noir,[4] Frank and Troquart,[1] Nairne, J. and A.,[2] Deneffe and Van Wetter,[3] Guérin and Surmet,[4] Giraldès,[5] Labbée,[6] Redier,[7] Bouilland,[8] Valentinotti and Grandessi Sylvestri,[9] Le Fort, Duplay, Verneuil and Forget,[10] Lande,[11] Linhart,[12] Liebreich,[13] and many others.

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[1] Gazette des hôpitaux, Aug. 13th, 1878.

[2] Ibid., 1872, p. 524; 1874, p. 611.

[3] Chiorne (Lo Sperimentale, Fasc. 1, 1876) Allg. Med. Cent. Zeit., April 29th, 1876.

[4] Ibid., Dec. 29th, 1869.

Drs. Tizzoni and Fogliata have undertaken a series of experiments with a view to elucidating the following questions. *First*. Is chloral when injected into the blood anesthetic? *Second*, Is the method free from great danger? *Third*, What are these dangers? *Fourth*, Upon what tissue elements does chloral act? From numerous experiments they arrived at the following conclusions: *First*, That although chloral when injected into the veins is a powerful hypnotic, it is not a true anesthetic; the cutaneous sensibility ceases only when a very large dose is given, and the cornea almost never becomes entirely insensible; *second*, that the process is very dangerous, for the exact dose cannot be regulated; the action is highly variable in different individuals, there is no means of moderating the action if excessive, and it may lead to phlebitis. Add to this that a large quantity of fluid is injected suddenly into the circulation and may lead to ill-effects, or air may be introduced.

In an excessive dose, chloral produced death by its direct action on the heart, the movements of which ceased in diastole; *third*, their experiments led them to believe that the poison acts directly on the muscular fibres of the heart; that when locally applied it causes contraction of these fibres, and thus produces a tetanic systole of the ventricles, but when injected into the blood or beneath the skin, or given by the mouth, it excites the

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[1] Ibid., 1877, p. 861.

[2] Glasgow Medical Journal, July, 1875.

[3] Druggist's Circular, May, 1875.

[4] Bulletin Général, Vol. 86, p. 330.

[5] Gaz. des hôpitaux, 1869. p. 523.

[6] Du Chloral. Bull. Gén. de Thérap., 1870, T. 2. p. 330.

[7] (Jour. des Sciences Médic. de Lille) Druggist's Circular, Aug., 1879.

[8] (L'Institut) Med. Times and Gazette, Aug. 14th. 1875.

[9] Bull. Gén. de Thérap., Vol. 86. p. 286.

[10] Gaz. des hôpitaux, 1874, p. 635.

[11] Bull. Gén. de Thérap., Vol. 91. p. 35.

[12] Ibid., Vol. 91, p. 82.

[13] Das Chloralhydrat, ein neues Hypnoticum und Anæstheticum und dessen Anwendung in der Medicin, Berlin, 1869.

"diastolic extensibility" of the muscular fibres, and thus produces a forced diastole. They add that subcutaneous injection of chloral is not more desirable, as it causes local muscular spasm, and hence absorption is slow and irregular, and that it is liable to cause gangrenous abscesses.

As an antidote in poisoning by chloral they recommend the cold douche to the head and spine, and consider injections of strychnine, quinine, atropine, and curare injurious.

These results will, we trust, deter English surgeons, at least, from a method of procuring anesthesia which is at once so gratuitously dangerous and so doubtful in its effects.[1]

In some cases indeed, instead of producing anesthesia, chloral produces hyperesthesia. This has been proved in animals by the experiments of Dieulafoy,[2] Richardson,[2] Labbée.[3] In the majority of cases I believe that there is a brief stage of hyperesthesia before the appearance of partial anesthesia. Those cases where hyperesthesia persists must, like those where chloral produces conjunctivitis, eruptions, or delirium, be referred to some idiosyncrasy of the patient.

We are certain of one fact, viz.: that we are able, with moderate doses of this drug, to produce as complete anesthesia as we desire in the majority of cases of confinement. Almost complete anesthesia has been known to result from comparatively small doses, especially when combined with some preparation of opium. Thus Dr. L. C. Herrick, of Woodstock, Ohio, writes me: "In one case, where I wished to introduce my hand into the uterus, I gave about two scruples of chloral and one-half grain of the sulphate of morphia by the rectum, with the result of producing about as complete anesthesia as would result from the use of chloroform. I introduced my hand without the woman's being aware of it. She remained in a state of anesthesia nearly two hours, and fully recovered without any bad symptoms."

Indeed, so severe an operation as that of Cesarean section, with the result of saving both mother and child, has been performed under the influence of about one hundred and sixty grains of chloral, in two doses. The case is reported by Valentinotti,[1] the operation having been done by Grandessi Sylvestri.

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[1] Lancet, Nov. 11th, 1876.

[2] Quoted by Ernest Labbée. Archiv Gén. de Méd., 1870, T. 2, p. 330.

[3] Ibid.

Dr. R. Fowler, of Aurora, Texas, writes me: "In regard to chloral, I would say that there is one combination that I have been using for several years in all my labor cases. I have found it an excellent anesthetic substitute for chloroform. I commence with the first pains, or as soon as I arrive and find my patient in labor. The following is the mixture:

Chloral hydrate,
Potass. bromid.,
Pulv. ipecac. co...................... āā gr. xx.
Aq. .... ℥ ij.

Of this, I give a teaspoonful every half-hour, until the patient is brought under its influence; then, just enough to hold her there during the balance of the labor. I take special pains to have her fully under its influence as the head of the child is emerging from under the pubes, which is the most exquisitely painful part in parturition. All of my patients are loud in their praise of this combination. Their labors are almost painless, and they are not bereft of their senses, as is the case when chloroform or ether is used."

In the majority of cases of confinement, our object should be not to anesthetize, nor even hypnotize the patient, but simply to dull the pain, and allow of the woman's obtaining short naps that greatly rest her between the pains. This is readily done by small doses of the drug, given at moderate intervals.

Chouppé[2] finds from ʒ i. to ʒ iss. in two doses at half-hour intervals sufficient. He especially commends its employment in the labors of primiparæ, and of nervous and hysterical women. When its use is preceded or followed by vomiting, he gives it by the rectum. He says that, beside relieving pain, it increases uterine action, and never injures the child. He does not advocate its use subcutaneously.

In the *Giornale della Academia de Torino*,[3] a writer lauds chloral very highly in the first stage of labor, both as relieving pain and hastening dilatation of the womb. He employs a mixture containing about 70 gr. of chloral to ℥ v. of vehicle. One-tenth of this (one tablespoonful) is given when the more severe pains commence. In twenty minutes he gives another dose, and still another in three-quarters of an hour—the remainder to be used, if needed, at the discretion of the physician. The average quantity for each confinement is forty-five grains.

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[1] (Gazetta Obstetricale, Feb., 1874.) Bull. Gén. de Thérap., Vol. 86, p. 286.

[2] (Annales de Gynécologie) Practitioner, July, 1876.

[3] Schmidt's Jahrbücher, June, 1880, p. 39.

Dr. Lambert,[1] late House Surgeon to the Edinburgh Maternity Hospital, thinks that chloral is superior to chloroform in labor. He highly commends its use, subject to the rules for administering chloroform laid down by Sir James Y. Simpson. He used fifteen grains every quarter of an hour until the desired effect was produced. He says that the labor may go from beginning to end without any consciousness on the part of the patient, and that it is usually shorter than natural labor.

Dr. Franco Mozarro[2] has drawn the following conclusions from fifty cases of labor where chloral was used:

1. The hydrate should be pure; otherwise it would be dangerous to use it, or, at least, it may be without any true therapeutic effect.
2. It acts as a calmative, producing sleep.
3. Uterine action continues during this sleep. The pains are shorter, less frequent, and pretty energetic. Generally the duration of labor is shortened.
4. The anesthesia may be complete enough to render the woman unconscious, even during the expulsive period, and for some time afterwards.
5. In small doses, it causes agitation, which ceases when another dose is given.
6. The remedy may be given at any period of labor.

Dr. W. J. C. Du Hamel,[3] of Baltimore, was called to attend a lady in labor with her second child. Her first labor was very tedious, finally requiring the use of forceps. He found labor tardy, although the os was well dilated and the pains active. He gave her twelve grains of chloral every hour for three hours. After the second dose, the parts were found to be considerably relaxed, and in four hours after the first dose she was delivered of a fine child, without the use of instruments, and with *very little pain.*

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[1] (Edinburgh Med. Jour.) N. Y. Med. Record, 1870, p. 490.

[2] Quoted by Dr. J. V. Frazier, AM. JOUR. OBSTET., Aug., 1876.

[3] Amer. Journal Med. Sciences. 1870.

Dr. Pinkham,[1] of Boston, claims to have had good results in labor from small doses (5 gr.) of chloral.

Dr. Chiarlioni[2] narrates the results of the employment of chloral in the obstetrical clinic of the St. Catherine Hospital, Milan. He divides the patients to whom it was administered into four groups. The first of these consisted of pusillanimous, indocile, irritable, and nervous women, in whom the course of labor easily becomes interrupted or suspended. By administering to these subjects a substance which, while it leaves the uterine irritability intact, procures sleep, tranquillity, and diminution of pain, great benefit results. Chloral was given to twenty such cases, most of them being primiparæ, whom the novelty of their situation rendered more apprehensive and desponding. In most of the pluriparæ, the waters had been discharged prematurely, or their strength was defective. In such persons, the sound sleep which is produced is followed either by a vigorous uterine contraction, or a diminution of suffering. Under the action of the chloral, the uterine contractions acquired greater strength, while the diminution of general sensibility was not carried to the point of suspending the auxiliary pain derived from voluntary effort, which the woman brought more into action when she suffered less pain, exemplifying what has been said of chloral, that, under its action, the process of labor is of shorter duration.

A second group of cases was formed of women the subjects of albuminuria, verified either during pregnancy or shortly before labor. In these, chloral was indicated, not only on account of the reasons prevailing in the other groups, but also in relation to the prevention of convulsive action. There were nine of these patients, in four of whom labor occurred prematurely. Chloral was administered in five cases, and in none of these did any convulsive affection occur. In a tenth case, in which the albuminuria was not observed until eclampsia occurred, chloral was the only remedy employed; fourteen grammes were given within the twenty-four hours. The convulsions were definitely arrested, and labor took place during the chloralic sleep. In the third group, chloral was given in five cases, in order to render operations that were necessary more easy and less painful. The fourth and most numerous group was composed of women to whom chloral was given soon after the termination of labor, the patients having either been the subjects of operation or suffering exhaustion from prolonged or painful operations. Administered during labor, chloral did not prevent its progress, nor did it act prejudicially on the fetus. It always produced a diminution, and sometimes almost a complete suppression of pain, the sleep which resulted being calm and reparative, nearly resembling, in fact, natural sleep, lasting from one to five or more hours, according to the dose and the individual, and disappearing without leaving any heaviness of the head or disturbance of the intellect. In some cases, however, there was, on wakening, or even before falling to sleep, some talkativeness, or even a state approaching alcoholic intoxication. The formula generally adopted, and always freshly prepared, was: chloral, 6 grammes; syrup, 60; and water, 100—a spoonful to be taken every ten minutes, until the effect was produced; but when it was deemed necessary to administer a larger quantity at once, 4 grammes of chloral were dissolved in 60 of water, and administered as an enema in two portions, with at least an hour interval.

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[1] Boston Med. and Surg. Journal, 1871, p. 24.

[2] (Gaz. Med. Italiana Lombardia, 1875) Med. Times and Gaz., March 13th, 1875.

Upon the whole, he regards chloral as a far preferable agent in obstetric practice to chloroform, being easy of administration, efficient in diminishing suffering, while not arresting uterine action, and in no way dangerous to either the mother or the fetus.

Polaillon,[1] however, makes a somewhat different showing. He used chloral by enema in seventeen cases (from thirty to one hundred and ten grains in each case). Retardation or arrest of labor occurred in the majority of instances, the head having to be removed by forceps, when at the vulva. In some cases, it had no effect; in others, labor progressed naturally. He does not commend its use, especially in painful contraction of the os, and says that it should *never* be given in normal labor.

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[1] Gazette Hebdom., Oct. 13th, 1878.

It was for this very effect that Polaillon denies to chloral, that Playfair[1] commended it above chloroform. He says that, while chloroform diminishes the pain in labor, it also lessens the force of the uterine contractions, and predisposes to post-partum hemorrhage, while chloral has no such effect.

Dr. J. Gerson Da Cunha,[2] of Bombay, has employed chloral "to start up pains" in labor with great success.

Dr. Nathan Chapman,[3] of Glymouth, Md., states that, in a case of tedious labor, the os being fully dilated and the water discharged, ergot failed to cause expulsion. Two twenty-grain doses of chloral accomplished the result, and gave the patient a quiet sleep.

Dr. A. F. Watkins[4] very forcibly makes this distinction between the relative values of chloral and chloroform:

"There are few subjects of greater practical interest to the accoucheur than the means for lessening the sufferings of parturition. Among the chief of these is unquestionably chloroform, which, besides having passed into almost universal use, possesses powers which, if properly controlled, are invaluable. Yet I am impelled to say that, as my experience with it increases, my estimate of its usefulness in labor is diminished. Nor does this arise from chloroform doing too little, but because of its really doing too much. I am free to allow that when given with judgment, during pains only, and then not until these have become strong and forcing, and never to full anesthesia, the action of chloroform is admirable, soothing suffering, and in no wise retarding labor. On the other hand, labors are often encountered where both the force and frequency of uterine contractions are unmistakably diminished under its influence. Speaking for myself, it has clearly been my experience repeatedly to observe that chloroform lessened the strength of the pains, and in so far lengthened the duration of labor. Not infrequently, I, in common with many other observers, have witnessed pains which, before chloroform was administered, were active and efficient, become weak and feeble during its inhalation, and then grow strong again when the chloroform was withheld. I am equally sure, also, that the continuous use of chloroform in labor predisposes to post-partum hemorrhage, owing to that general relaxation of the system which ensues, and which we know is often prolonged in the uterine fibres long after the child is expelled. Yet, with these and other drawbacks, which I will not stop now to enumerate, to chloroform in labor, I by no means condemn its use, but, on the other hand, allow that, in its time and place, and with the really indispensable precautions, it is an agent which often cannot be dispensed with by the accoucheur.

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[1] London Lancet, Feb., 1874.

[2] Lancet, Dec., 1870.

[3] American Jour. Med. Sciences, July, 1875.

[4] (American Practitioner) Medical Gazette. Mar. 20th., 1880.

"Chloral hydrate, however, is, under certain conditions of parturition, a much more serviceable agent than chloroform, and one whose claims have not, I think, been as fully recognized by the profession as they should be. Among other, chloral possesses the immense advantage over chloroform, in that it seems to diminish neither the strength nor duration of the pains, while it materially lessens the attendant suffering. Another quality possessed by chloral, and which gives it additional value, is that it is suited to a period of labor, when chloroform would not be thought of, viz.: toward the end of the first stage of labor, before complete dilatation of the os, and when the sharp, grinding pains cause more suffering and are less easily borne than the expulsive efforts of the latter stage. There is a type of labor very common in women of highly-developed nervous organization, such as are met with among the wealthier classes, where I have found chloral especially valuable. In these cases, previous to the rupture of the membrane, and the complete dilatation of the cervix, the pains, though very severe, are short and ineffectual, limited chiefly to the back, and producing little or no impression on the os, causing hours of intense but fruitless suffering. Here the common and very useful practice is to administer a full opiate, in order to produce sleep, after which the labor usually recommences with new vigor and effect. The disadvantage of the anodyne, however, is that during its action labor is practically suspended, and much time is thereby lost. Chloral, however, is not obnoxious to this objection, and when given at this juncture, the same refreshing rest will probably be obtained, while the progress of the labor itself will not be interfered with. The uterus will continue to contract, but the character of the contractions will generally be observed to alter and become steady and effective. Another condition frequently associated with that just described is rigidity and spasm of the cervix. In this class of cases, the cervix is generally thin and rigid, with a sharp edge. Soon after the exhibition of chloral, these tissues seem to relax; and I have frequently observed a thin os, which, having remained unchanged for several hours, would quickly soften and dilate under the influence of the drug far more rapidly, I have thought, than it would have done had chloroform been given instead."

In comparing the action of chloroform, chloral, opium, and morphine, in labor, some interesting experiments were made by Dr. Pinard:[1]

At the Maternité, twenty-eight women were subjected to experiment, with the following results:

(*a*) As a true anesthetic, chloroform took the first place.

(*b*) Chloral seemed to be more hypnotic than anesthetic in effect. Its action on contractility and retractility, as well as its expulsive powers, could not be definitely determined, owing to the slow absorption of the drug.

(*c*) Of twenty-three patients submitted to chloroform, twenty-one left in relatively good condition, and two died of peritonitis within five or six days after delivery.

Of one hundred and sixty others, who were in labor at about the same time, but used no chloroform, none died.

It is very likely that chloroform had nothing whatever to do with these fatal cases, it being probable that they were so grave as to demand the use of chloroform.

Dujardin[2] finds that chloral lessens the frequency and increases the intensity of the uterine contraction, shortens labor, quiets the nervousness, and lessens the shock. He relates two cases, in very nervous women, where the results were excellent. McRae,[3] Salvatore Caro,[4] of New York; Prof. A. Atkinson,[5] of Baltimore; H. J. Garrigues,[5] New York; C. A. Bryce,[5] Richmond, Va.; O. D. Abbott,[5] Manchester, N. H.; Q. C. Smith,[5] Austin, Texas; E. N. Tull,[5] Fairland, Ind.;

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[1] Gazette des hôpitaux, 1879, p. 146.

[2] Gazette Méd. de Paris, Feb. 1st, 1873.

[3] Edinburgh Med. Journal, Nov., 1871.

[4] Trans. N. Y. State Med. Society, 1872, p. 221.

[5] By letter to the writer.

Prof. J. H. Etheridge,[1] Chicago, Ill.; R. L. Pinching,[1] San Francisco, Cal.; R. W. Bruce Smith,[1] St. Thomas, Ontario; J. V. Frazier,[2] Prof. Thaddeus Reamy,[3] Cincinnati, Ohio; Madison Hammel,[1] Circleville, Ohio; J. L. Crawcour,[1] New Orleans, La.; W. L. Richardson,[4] Boston, Mass.; and C. A. Prentiss,[5] speak favorably of it.

These gentlemen have found the drug of service—some to quiet pain, some to hasten dilatation of the os, and others to increase the force and lessen the frequency of the uterine contractions.

Dr. C. A. Prentiss uses chloral only in small doses, believing the induction of anesthesia both unnessary and dangerous.

The following gentlemen, whose opportunities for observing a large number of obstetrical cases have been very large, write me as follows:

A. D. SINCLAIR, formerly Physician to the Boston City Hospital, Boston, Mass., gives it in labor, finding that it promotes dilatation of the os uteri. Refers to an article by him in the *Gynecological Transactions*, Vol. 4, p. 232.

PAUL F. MUNDÉ, Obstetric Surgeon to Maternity Hospital, Blackwell's Island, N. Y., uses it occasionally to relieve teasing pains and hasten dilatation of the os uteri, in doses from $\frac{1}{4}$ to $\frac{1}{2}$ drachm, repeated once, or oftener, if necessary. If one large dose is to be given, he prefers its administration by the rectum.

WILLIAM GOODELL, Physician in charge of the Preston Retreat, Philadelphia, is very much pleased with its action in rigidity of the os uteri, and dryness of the parts, preferring it, on the whole, to morphine. He gives a twenty-grain dose at first, and then ten grains every hour until the desired result is effected.

J. MARION SIMS, New York, has had no experience with this drug in labor.

THOMAS M. DRYSDALE, President Phila. Co. Med. Society, Philadelphia, finds it an excellent remedy to quiet false pains.

ROBERT BATTEY, formerly Professor of Obstetrics and Clin.

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[1] By letter to the writer.

[2] American Journal of Obstetrics, IX., 402.

[3] (Cincinnati Lancet and Clinic) Braithewaite's Epitome, Mar., 1880.

[4] By letter and Gynecological Transactions, Vol. 1, p. 246.

[5] American Jour. Med. Sciences, Jan., 1876.

Prof. of Gynecological Surgery, Atlanta Medical College, Atlanta, Ga., has found it excellent in labor.

THOMAS ADDIS EMMET, Surgeon to the Woman's Hospital of the State of New York, Consulting Physician to Roosevelt Hospital, New York; Consulting Surgeon to St. Mary's Hospital for Women, Brooklyn, N. Y., has never used it in obstetric practice. In diseases of women, however, he has used it, found it dangerous, and its after-effects bad.

JOHN BYRNE, formerly Professor of Uterine Surgery, L. I. Coll. Hospital, Brooklyn; Surgeon-in-Chief to St. Mary's Hospital for Diseases of Women, Brooklyn, N. Y., has had no experience with chloral in labor.

ELLERSLIE WALLACE, Professor of Obstetrics and of the Diseases of Women and Children, Jefferson Medical College, Philadelphia; Consulting Physician to the Preston Retreat, and to St. Christopher's Hospital for Children, Philadelphia, has employed chloral as a sedative in the stage of dilatation, and to control hysterical manifestations in cases where, for any reason, opium is contra-indicated. Also, with good result in slight mental flickering and nervous twitching, which the pains sometimes produced (perhaps indicating the possibility of convulsions).

J. C. REEVE, Dayton, Ohio, formerly Professor of Materia Medica and Therapeutics in the Medical College of Ohio, has used it, with good results, in painful dilatation of the os uteri, and "crampy" pains, causing much distress and effecting but little good.

R. A. F. PENROSE, Professor of Obstetrics and of the Diseases of Women and Children, University of Pennsylvania; Consulting Obstetrician to the State Hospital for Women and Infants; Visiting Physician to the Preston Retreat, Philadelphia, writes that when *prudently* given in the first stage of labor, it is a valuable remedy.

GEO. J. ENGELMANN, St. Louis, Mo., Lecturer on Pathological Anatomy, St. Louis Medical College; Consulting Physician to the Female Hospital, has seen it freely given in the Lying-In Hospital of Berlin, with good effect. Does not use it himself now. Why, he cannot say. Formerly, he found it of great service in the first stage of labor in calming pain, allaying nervousness, and making uterine contraction more regular and less distressing.

G. H. Bixby, Boston, Mass., Surgeon to St. Elizabeth's Hospital for Women, has found it of service in lingering labor. He administers it by the rectum.

James R. Chadwick, Boston, Mass., formerly Clinical Instructor in the Diseases of Women, Harvard University; Physician to the Out-Patient Department Boston City Hospital, writes that his experience is limited. In a few cases, he has found it of service in lessening the severity of the pains.

Theophilus Parvin, Indianapolis, Ind., Professor of Obstetrics and the Diseases of Women and Children, College of Physicians and Surgeons of Indiana, has had no experience with it.

W. H. Byford, Chicago, Ill., Professor of Obstetrics and Diseases of Women and Children, Chicago Medical College; Gynecologist to the Mercy Hospital, Consulting Physician to the Cook County Hospital, and to the Hospital for Women and Children, has had no experience with it in labor. Has, however, had good results in puerperal eclampsia.

The following typical case-history was kindly sent me by Prof. James H. Etheridge, of Chicago, Ill.:

Patient, twenty years old; primipara; fell in labor at full term, January 17th, 1876, about 3 P.M. Pains continued all night, and I saw her morning of the 18th. Parts well lubricated, os dilated a trifle, everything going on well. That night I gave her forty drops tincture of opium, at 9 o'clock, and thirty drops more at 10 o'clock. She slept well, comparatively, till 5 A.M., 19th inst., when she was awakened by pains. At 9.30 A.M., twenty-two grains of chloral hydrate, administered by the stomach. She vomited promptly. Forty-five grains were then administered per rectum, and she fell asleep in fifteen minutes thereafter, and slept till 2.30 P.M., when she awoke in pain. During the chloral sleep, pains supervened regularly, and when she awoke the os was dilated to the size of a quarter of a dollar. At 5 P.M., she took twenty-two grains per orem, which she retained. It produced no sleep. Pains continued regularly till 7 P.M., when the expulsive pains began. She then took twenty grains more by the stomach. She became drowsy in a few minutes; ceased moaning with each pain, as she had done with every pain from the beginning of labor, when not asleep, but was not unconscious. At 8 P.M., the head came into the world, she asking at the time, in a very drowsy, drawling tone, if the labor were not about finished. It then required two additional, severe pains to complete the delivery, and she scarcely groaned, although answering questions in a slow, unmodified tone of voice. The severest part of her delivery she was scarcely conscious of, although complete insensibility was not induced.

The third stage of labor was normal. Child weighed ten pounds. After the completion of labor, she fell asleep for six hours, and awoke declaring that she was fit to get up and resume her customary duties.

In an accompanying letter, he says:

"I use it in cases of protracted labors, great nervousness and prostration (mentally, not physically), and in great suffering experienced by women who have an old patch of pelvic peritonitis, or of chronic cellulitis.

I give it as late in labor as I can, giving fifteen grains every ten or twenty minutes, till the patient becomes drowsy. *Afterwards*, I am governed by circumstances in its further use. A weakening heart systole demands its cessation. With good heart action and continued great suffering when a pain comes on, I give another dose, and another, and another, till the patient scarcely perceives the pains, and still is *not wholly* anesthized. To one patient, I gave ninety-six grains; to another, one hundred and eight grains, before I was satisfied to let her go through to completion. Frequently, sixty grains will answer."

Dr. J. L. Crawcour, of New Orleans, sends me the following:

Case of rigid os uteri.—Gave thirty grains of chloral, and in half an hour fifteen grains more. Repeated this at intervals of half an hour, until one hundred grains had been taken. This was followed by complete relaxation of the os, delivery taking place, with ease, two hours and a half after giving the first dose of chloral. There was no hemorrhage, and the patient slept calmly and naturally.

There are those who have not found chloral of service in labor. Thus Dr. H. P. C. Wilson, of Baltimore, Md., Surgeon to the Woman's Department of the Union Protestant Infirmary, writes me:

"I have never seen any good results from chloral hydrate in obstetric practice, and have long since ceased to give it under such circumstances. Its good effects (if any), which I have never seen, are much more than counterbalanced by its evil effects in demoralizing the nervous system."

The following gentlemen write me that they have failed to obtain a good result with it: J. Wm. Walls, Baltimore; O. F. Ham, North Barnstead, N. H.; Arch. M. Campbell, Mt. Vernon, N. Y.; A. P. Brown, Jefferson, Texas; and Roswell Park, of Chicago, Ill.

It has been claimed by some that chloral is open to the same objections as chloroform, on the score of post-partum hemorrhage. I have been unable to find the records of a single case, and have used it myself a number of times without any such result. Playfair and McRae claim that it does not predispose to unusual bleeding, as do many of my correspondents. If it is to produce this result by direct action on the blood, the quantity used is not enough, and the time in which it is given is too short; if by producing uterine inertia, it does not occur, for it is a well-known fact that, even in a state of complete anesthesia, the uterus still continues to contract, it being the os and not the body of the uterus that is softened, and dilatation favored by this drug. The fear expressed is based on false reasoning, and an imagined analogy between its action and that of chloroform. That some cases of flooding have occurred in patients who have taken chloral, I do not doubt. It would be remarkable if it were not so, but that is no reason for believing that the hemorrhage was due to the chloral, it occurring in a certain proportion of cases, when other drugs, and even when no drugs are taken.

As to the use of chloroform after the chloral, Playfair and Frazier say that it is perfectly safe. The use of opium or morphine after chloral is always dangerous.[1]

Prof. A. A. Smith, of Bellevue Hospital Medical College, this city, says that there is less danger in giving large doses in labor than at other times, owing to the fact that in labor there is an excess of blood in the brain.

There is one symptom incident to the exhibition of chloral in any disease or condition, due to individual or family idiosyncrasy, that is sometimes very annoying to the family and friends, especially in confinement, viz.: after the first or second dose, the patient becomes mildly delirious, talks, mutters, and moans. Dr. E. L. Partridge, of this city, has seen several such cases. Usually, another dose of chloral will remove all this, and put the patient in a dreamy, semi-conscious condition, in which state labor progresses easily and satisfactorily. Some patients are rendered wildly delirious, and become more so, the more chloral is given.[1] In such cases, it is well to desist after the second dose.

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[1] Kane. The Hypodermic Injection of Morphia: Its History, Advantages, and Dangers. New York, 1880; and articles on chloral, by the writer, in New York Medical Record, Dec. 25th, 1880, to Mar. 1st, 1881.

Dose and Mode of Administration.—For use in labor, chloral is best given by the rectum, the same dose acting with equal force as when given by the mouth. It may be exhibited in enema or suppository. Griffith's[2] formula is excellent. The required amount of the drug is beaten up with one or two raw eggs, and a little warm milk is added. This is at once thrown up the rectum, where it acts rapidly, and without causing any irritation. To each dose, I usually add 10 drops each of tincture of belladonna, tincture of digitalis, and tincture of opium. Griffith's plan has been tried and highly commended by Dujardin-Beaumetz,[3] he, however, using ʒ i. of chloral, the yolk of one egg, and a glassful of milk. So much fluid is not so easily retained as a lesser quantity.

Whidborne[4] has found suppositories made of chloral, hard soap, and honey very useful. Paul[5] uses cocoa butter, spermaceti, and powdered charcoal as a base. He employs them, however, only for their local action.

Catillon,[6] recognizing the ready solubility of chloral in fatty substances, recommends the following formulæ:

Chloral	6 parts.
Oil sweet almonds	30 "

or,

Chloral	6 parts.
Lard	27 "
Wax	3 "

For plasters, bougies, or suppositories, he advises:

Chloral	1 part.
Wax	2 parts.
Cocoa butter	2 "

An attempt to make a suppository with cocoa butter and chloral will result in a semi-fluid, fatty mass that is worthless, for the purpose intended. Hence the addition of wax. As a rule, the enemata are much more rapidly absorbed than the suppositories. If the expulsive pains are severe, it may be necessary to give the drug by the stomach, as the fluid or solid will usually be forced from the rectum.

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[1] Kane. Chloral Delirium. To appear in New York Medical Record, April, 1881.

[2] British Medical Journal, May 8th, 1875.

[3] Bull. Gén. de Thérap., June 15th, 1876.

[4] Quoted by McRae, Edinburgh Med. Jour., Nov., 1871.

[5] Bull. Gén. de Thérap., April, 1875.

[6] (Gaz. Hebdom.) Druggist's Circular, Mar., 1879.

The subcutaneous use of this drug is usually followed by severe inflammation and abscess.

As to the dose, it is best to commence with thirty grains, giving additional doses of fifteen grains, at intervals of an hour. Playfair rarely found it necessary to give more than ʒ i. in any one confinement. Exceptional cases may call for larger quantities.

Regarding the uses of chloral hydrate in labor, we are justified, I think, in coming to the following

Conclusions.—1. Chloral may be employed in normal labor for the purpose of blunting sensibility, quieting nervous and hysterical manifestations, shortening labor, and destroying false pains.

2. In complicated labor, it has three uses, *i. e.*, (*a*) to relieve pain; (*b*) to hasten dilatation of the os uteri, and (*c*) to increase the force of the uterine contractions.

3. That chloral, even when pushed to the production of anesthesia, does not destroy the force of the uterine contractions.

4. That the alleged danger of post-partum hemorrhage has no foundation in fact.

5. That in moderate doses it is never dangerous.

6. That the slight delirium that sometimes occurs is usually removed by an additional dose of the drug, and need occasion no alarm.

7. That it is rarely necessary to use more than ʒ i. in any one confinement.

8. That it is best given by the rectum, in the form of enemata or suppositories.

AFTER-PAINS.

Chloral has been recommended in severe after-pains by Dr. W. L. Richardson,[1] of Boston. Opium and morphine are, I think, quite as efficacious, and not as dangerous.

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[1] Gynecological Transactions, Vol. 1, 1876, p. 246.

CHLORAL AS A SEDATIVE TO ABORTION.

It seems strange that a drug that is used in labor to hasten dilatation of the os and increase uterine contractions should have been used also to arrest these actions when occurring at any time other than full term.

The first record of its use in this way that I have been able to find is a trial made by Dr. C. P. Whitehead,[1] of Lake Providence, La., in 1872. In a case of threatened premature labor, accompanied by terrible bearing-down pains, he gave thirty grains of chloral, to be repeated in a half an hour if necessary. The second dose relieved all symptoms, and the delivery took place some three weeks later.

The following case by Dr. O. F. Ham,[2] of North Barnstead, N. H., is probably one of threatened miscarriage thus averted, although the doctor seemed to think it was a normal labor arrested at full term. He says:

> "In one case, labor had been going on for ten hours. The pains occurred every ten or fifteen minutes. The os was dilated to the size of an orange. The patient was considerably exhausted. Gave her forty-five grains of chloral. She went to sleep and slept two hours. The pains did not recur for a week, when she was taken sick and the child born before she could be got to bed."

Martineau[3] relates the case of a woman seven months advanced in pregnancy. Pain and uterine action followed the taking of a large dose of quinine. Chloral promptly quieted pain and prevented abortion. He attributes its action to a direct amyosthenic effect upon the uterine muscular fibre.

Besnier,[4] who has used it successfully in these cases, adopts an entirely different explanation. Bearing in mind Lambert's[5] observations, he thinks that, in normal parturition, contraction of the uterus is excited by mechanical action exerted by the distended membranes, head, presenting part, etc., and that the contractions thus instituted are partly kept up by the reflex action of the labor-pains; while in abortion the contractions are generally produced, not by any continuous mechanical agency, but by some accidental or passing cause, as a blow, fall, fatigue, etc., the *pains* being the cause that continues the labor. In labor, chloral acts as an anesthetic, which in normal parturition suppresses the pain, leaving the mechanical agents to act undisturbed. The contractions being less frequent and of shorter duration, allow the uterus to recuperate more fully during each interval, whence the greater energy. In abortion, on the other hand, the anesthetic action of chloral suppresses the pain, and with it the only cause of the uterine contractions. Thus the effects are explained without invoking the aid of any paralyzing effect of the drug on the uterine muscles.

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[1] Atlanta Medical and Surgical Journal, May, 1872.

[2] By letter.

[3] (Gaz. des hôpitaux, Mar. 5th, 1873) Medical Times and Gazette, Mar. 8th, 1873.

[4] L'Union Méd., Sept. 27th, 1873.

[5] Edinburgh Med. Journal.

If the fetus or placenta are already engaged in the os, chloral will only hasten its expulsion.

A case is related by M. L. Brown, where chloral would seem to have hastened the miscarriage. The patient was four months pregnant. There was great pain and a rigid os. Chloral caused the patient to sleep, the os relaxed, and the woman awoke to find the fetus in bed.

I have three times tried this drug to prevent abortion ; once with and twice without viburnum prunifolium. The patients were respectively advanced to the seventh, third, and fourth months. One of those treated with chloral alone, aborted, the miscarriage having advanced too far for any hope of saving the fetus to be entertained. In the others, the uterine action was promptly arrested and the patients went to full term.

The bleeding was, in none of these cases, excessive.

PUERPERAL ECLAMPSIA.

In this very common and exceedingly distressing disease, chloral hydrate has scored its greatest triumph. The commendations bestowed upon its action, in a few cases in the early history of the drug, have been more firmly based by successes attending its exhibition in a large number of cases since. From what I have been able to learn, it was first employed by Serré, of Bapaume, France, and later in every part of the civilized world. It is not claimed for it that it cures every case, for this would place it in the high rank of a specific, and this it certainly is not. It has, however, cured more cases than any single remedy or combination of remedies known to us.

[1] Boston Med. and Surg. Journal, Vol. 9, p. 265.

Fauny[1] was able to collect 36 cases, which number included 7 cases observed by himself, treated by chloral. After a careful study of these cases, and all others treated by divers methods up to the date of writing, he comes to the conclusion that the largest number of recoveries have occurred under the chloral treatment. Of the 36 cases treated by chloral, there were 33 recoveries, giving a mortality of 3.7 per cent, as against 36 to 45 per cent from bleeding, 19 per cent with anesthetics, and from 26 to 35 per cent from the usual obstetrical treatment.

Chouppée[2] gives 36 cases. In 16 of these this drug was associated with other remedies. In 12 cases, where chloral alone was used, all recovered.

Portal[3] relates three cases thus successfully treated, and remarks: "In six previous cases treated by leeches and inhalation of chloroform, all died."

The following gentlemen have used chloral successfully in this affection: Drs. John M. Thompson,[4] Adolph Dumas,[5] Laborde,[6] Baudon,[7] Portal[8] (3 cases), Rabl-Rückard,[9] A. Serre,[9] A. T. Wheelock,[10] Belfast, Me.; R. Dacre Fox,[11] Warfield,[12] J. G. Swayne,[13] Phys. Accoucheur to Bristol Hospital (2 cases), Whidborne,[14] Charrier,[15] Purefoy,[16] J. H. Raymond[17] (2 cases); C. C. Fite,[18] Shelbyville, Tenn.; C. H. Hughes,[19] St. Louis, Mo.;

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[1] (Thèse de Paris, 1874, No. 50) Bulletin Gén. de Thérapeutique, Vol. 86, p. 286.

[2] (Annal. de Gynécolog.) Practitioner, July, 1876.

[3] Bulletin de Thérapeutique, Aug. 15th, 1875.

[4] (Virginia Med. Monthly) Med. Brief, Sept., 1877.

[5] Bull. Gén. de Thérap., Vol. 89, p. 318, 1875.

[6] Ibid., Vol. 90, p. 127, 1876.

[7] Ibid., Vol. 94, p. 513, 1878.

[8] Ibid., Aug. 15th, 1875.

[9] Labbée, Ibid., 1870, t. 2, p. 330.

[10] N. Y. Medical Journal, 1871, p. 301.

[11] Lancet, 1870.

[12] Phila. Med. Times, Feb. 1st, 1879.

[13] American Practitioner, Feb., 1872.

[14] Lancet, Oct., 1871.

[15] Edinburgh Med. Journal, July, 1875.

[16] Dublin Med. Journal, June, 1878.

[17] N. Y. Medical Record, Dec. 1st, 1869.

[18] Am. Med. Bi-Weekly, Nov. 9th, 1878, and by letter.

[19] St. Louis Med. and Surg. Journal, Nov. 1879, and by letter.

Baron Paul Von Seydevitz,[1] A. E. Bower,[2] Hay,[3] Milne,[4] Coudereau,[5] Bourguet[6] (2 cases), Bartlett,[7] Allison Maxwell,[8] Indianapolis, Ind.; Allo[9] (2 cases), Cassaignan,[9] Campbell,[10] E. P. Easley[11] (3 cases), New Albany, Ind.; James Masten,[12] Westfield, Pa.; C. V. Widding,[13] Stephensport, Ky.; Robert Battey,[8] Rome, Ga.; D. M. Drysdale,[8] Philadelphia; W. H. Byford,[8] Chicago, Ill.; C. A. Bryce,[8] Richmond, Va., Arch. M. Campbell,[8] Mt. Vernon, N. Y.; Geo. W. Elerick,[8] Hickory, Iowa; J. Foster Bush,[8] Boston Mass.; J. H. Arton,[8] Hamilton, Bermuda; J. W. Slinker,[8] Mt. Ayr, Iowa; W. H. Travers,[8] Providence, R. I.; J. E. Dundas,[8] Cambridge, Wisconsin; Polaillon,[14] J. M. Pace,[8] Dallas, Tex.; Q. C. Smith,[8] Austin, Tex.; Playfair,[15] Wm. L. Richardson,[16] Boston, Mass.; H. H. Kane, New York; Blot,[17] and many others, also those named in Testut's table soon to be given. Charpentier[18] (*Thèse de Paris*) relates seven cases of eclampsia treated successfully with chloral and adduces statistics showing the marked superiority of chloral over chloroform. In the cases treated by the latter agent, there were but fifty per cent of recoveries.

In those cases reported by Laborde,[19] Baudon,[19] Portal,[19] Bartlett,[19] and Cassaignan,[19] albumen was found in the urine. This was undoubtedly the case with many of the others, only the fact is not mentioned. The family history in Bartlett's case is peculiar. The patient, her mother, her mother's sister, the grandmother on the maternal side, and the mother's niece, a cousin of the patient, all had convulsions at full term, and all died, save this one.

Londoneau, after relating the history of the following case,

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[1] Med. Times and Gazette, April 16th, 1870.

[2] Lancet, Aug. 11th, 1877.

[3] Practitioner, 1871, p. 191.

[4] Simpson: Edinburgh Med. Journal, May, 1870.

[5] Bull. Gén. de Thérapeutique, Vol. 86, p. 125.

[6] Gazette des hôpitaux, 1876, p. 980.

[7] Buffalo Med. and Surg. Journal, Jan., 1880.

[8] By letter.

[9] Gazette des hôpitaux, 1875, p. 18.

[10] Lancet, Nov., 1870.

[11] Louisville Med. News, Jan. 8th, 1881, and by letter.

[12] Med. and Surg. Reporter, Phila., July 14th, 1877.

[13] Ibid.

[14] Quoted by McDonald: Am. Jour. Insanity, Jan., 1878.

[15] Lancet, May, 1871.

[16] Gynecological Transactions, Vol. 1, 1876.

[17] Gaz. des hôpitaux, 1870, p. 170.

[18] Med. Times and Gazette, Mar. 8th, 1873.

[19] Already referred to.

SYNOPTIC TABLE, CONDENSING THE DIVERSE OBSERVATIONS ON ECLAMPSIA, TREATED WITH CHLORAL.

No	Year.	Name of Authors.	Bibliographic Indications.	No. of Birth. Age.	Commencement of fits. What Stage of Labor.	Character and Frequency of Fits.	Treatment and Doses of Chloral used.	Results.	Observations.	Condition of Urine.
1	1869	Serré	Bull. Soc. Chirurg., 1870, p. 110.	Primipara	? Seems to be after.	Violent, last 4 to 5 minutes; 33 before medication and 33 after, these latter within 24 hours.	Bleeding and sulph of quinia unsuccessfully; chloral in potion.	Cure	....	No albumen.
2	1869	Rabl-Rückard	Berl. Woch., LVI., 1869.	?	During labor	Violent	7 grams chloral and by podermical injection in 10 hours.	Cure	Abscesses formed, caused by hypod. injection.	?
3	1869	Id.	Id.	?	Id.	Violent	Subcutaneously 6 grs. 50 in 3 hours.	Cure	Eschars	?
4	1869	Lecacheur	Charpentier, Thèse d'agregation, 1872.	Blank; 18 yrs.	Blank	Violent; short, followed by coma.	Blank	Cure	....	?
5	1870	Alexander	Practitioner, March, 1870.	?	?	?	Chloral; no details.	Cure	....	?
6	1870	Mackintosh	The Med. Times and Gaz., 1870.	Multipara	After birth	?	By way of stomach	Cure	....	?
7	1870	Milne	Edinb. Med. Journal	Multipara	In labor, suddenly after a fright.	At short intervals.	Stomach, 1 gr. 50.	Cure	....	No albumen.
8	1870	Dowel	Dublin Quarterly Journal.	Blank; 8th pregnancy.	Before birth, during and after.	Violent and frequent.	Mouth; 50 grains in two doses.	Cure	Vesicants, purgatives and opiates had failed.	?
9	1870	Dacre Fox	The Lancet, 1870	?	In labor	Continuous	Mouth; jusquiames, digitalis, bicarbonate potash.	Cure	Dilatation of pupils noticed during fits; forceps brought putrefying dead child.	?
10	1870	Von Seidwitz.	Obst. Soc. of London; The Lancet, 1870.	?	After birth	Violent	Late use of chloral	Cure	All other medication had failed.	....

11	1870	Campbell	The Lancet, 1870	Primipara	Commencement of labor.	Half hourly, and after first dose every 10 minutes.	Mouth; 40 grains in water; same again.	Cure		Slightly albuminous.
12	1871	M. Raynaud	Bull. Gén. de Thérap., 1871.	?	After birth	30 to 40 fits in 20 hours.	Potion (draught) 10 grams in 15 hours.	Cure	Chloroform had failed.	Albuminous.
13	1871	Philipps	Med. Times and Obst. Soc., London.	?	?	Violent	4 grams (a drachm)	Cure		?
14	1871	Philipps	Id	?	?	?	4 grams	No effect.		?
15	1871	Furley	Edinburgh Med. Jour	Primipara; 18 years.	Before labor and after.	Every 15 minutes, in all 12 before chloral given.	Mouth; also, acetate of potash.	Cure	Craniotomy; mother and sister had had eclampsia.	?
16	1871	Whidborne	The Med. Times and Gaz., 1871.	7th; 40 years.	?	Convulsions for 7 hours.	Suppositories with chloral.	Cure	All medication had failed; cure after second suppository	?
17	1871	Id	Id	?	?	?	Suppositories of chloral	Cure		
18	1871	Id	Id	?	?	?	Suppositories of chloral.	Cure		?
19	1871	Playfair	Med. Times and Obst. Soc. Gazette, 1871.	?	?	Eclamptic woman.	Treatment with chloral.	Successful.		?
20	1872	Bardet	Fauny Inaugural Thèse, 1874, p 18.	Primipara; 22 years.	Before and after birth.	Half hourly and strong.	Bleeding and chloral	Death	A 5 month old fetus extracted in putrefying condition.	?
21	1872	Tarnier	Charpentier, Thèse d'agreg., p. 82.	Primipara; 24 years.	During labor	?	Bleeding, purgatives and chloral.	Death		?
22	1872	Starley of Fairfield.	American Practitioner	Multipara	Before birth	?	30 grams chloral	Cure	Forceps	?
23	1872	Id	Id	?	After birth	?	30 grams chloral, and hypodermical injections morphia.	Cure		?
24	1872	Darin	Gaz. des Hôp., 1872, p. 892.	Multipara	9 hours after birth.	Hourly, lasting 25 minutes, coma included.	Chloral in a draught	Cure	Edema	Albuminuria.
25	1873	Bourdon	Gaz. Médic., 1873, p. 61	Primipara; 21 years.	Before birth		Clyster with chloral	Cure	Edema	Much albuminuria.
26	1873	Fauny	Thèse Inaugurale, 1873, p. 24.	Primipara; 23 years.	Before giving birth.	Every 15 minutes.	Hypo. injection of hydrate of chloral.	Cure	Edema; epilepsy in mother's family.	Much albuminuria.
27	1873	Fauny	Id., p. 28	Primipara; 22 years.	During labor	And every 10 minutes after birth.	Clyster of chloral	Cure	Forceps	Albumen
28	1873	Fauny	Id., p. 28	Primipara; 27 years.	During labor; before birth.	2 fits in all in 2 hours; 5 minutes each.	Mouth; 4 grams	Cure	Hemorrhage; edema.	?

No.	Year.	Name of Authors.	Bibliographic Indications.	No. of Birth. Age.	Commencement of Fits. What Stage of Labor.	Character and Frequency of Fits.	Treatment and Doses of Chloral used.	Results.	Observations.	Condition of Urine.
29	1873	Coudereau	Bull. gén. de Thérap., 1874, t. 85, p. 506.	Primipara; 23 years.	Before birth	In all 3 fits at 20 minutes interval.	Chloral with morphia injection.	Cure		?
30	1873	Baudon	Id	Primipara; 22½ years.	Before birth and after.	Very violent, lasting 20 minutes.	Sanguine emissions and chloral.	Cure		?
31	1873	Chouppe	Gaz. Obstétrique, May 5, 1873.	Primipara; 22 years.	Before birth	?	Bleeding; chloral hydr. 10 gr. in all.	Cure	Chloral produced sufficient anesthesia to allow use of forceps without pain.	Much albumen and edema.
32	1873	Chouppe	Id	Primipara	After birth	?	16 gr. chloral	Cure		Albumen.
33	1873	Chouppe	Fauny, loc. cit., p. 31, p. 21.	Primipara; 23 years.	In labor	17 during labor and birth; 11 after birth.	In clyster and potion	Cure.		Much albumen.
34	1874	Charrier	Annales de Gynécologie, 1874, Revue d'Hayem, tome 4, p. 183.	?	Before labor	3 fits in all	Clyster of chloral	Cure		?
35	1874	Allo	Bull. de Thérap., 1875, t. 89, p. 418, and Gaz. des Hôp., 1875, p. 18.	Multipara; 4th birth.	After birth		8 gr. in 24 hours; mouth.	Cure.		?
36	1874	Allo	Id., p. 417	Primipara; 23 years.	Before birth: in 7th month of pregnancy.	4 fits in 3½ hrs.	12 gr. chloral in 24 hours.	Cure	Chloroform had failed.	Heavy precipitate with nitric acid.
37	1874	Bardet	Fauny, Thèse de Paris, p. 21.	Primipara; 31 years.	Before birth	Violent	Mouth	Cure.	Forceps	?
38	1874	Bookleess	Edinb. Med. Journal.	Primipara; 28 years.	Before and after birth.	One every 20 minutes.	Chloral	Cure	Chloroform unsuccessfully used.	?
39	1874	Kohlmann	Corresp. Blatt and Jour. Therap., 1874, p. 920.	Primipara	Before and after birth.	?	Chloral and morphia	Cure		?
40	1874	Verget	Bull. Soc. Med. de Gand, 1874, p. 91.	Primipara	Before birth	?	Chloral and bleeding	Cure	Forceps	?
41	1874	Verget	Id	Primipara	Before birth		5 gr. of chloral	Cure.		?
42	1875	Portal	Bull. Thérap., 1875, tome 84, p. 131.	Primipara	After birth	Every 15 minutes, in all 25 fits.	Chloral in potion	Cure.		?
43	1865	Portal	Id	Primipara	During labor	?	Mouth	Cure		Albuminous.
44	1875	Portal	Id.	Primipara	During labor	?	Chloral and morphia	Cure		Albuminous woman.

45	1875	Dumas	Bull. Thérap., 1875, tome 89, p. 317.	Primipara; 30 years.	Before birth		Mouth	Cure	Forceps	?
46	1875	Pifteau	Ibid., p. 460	Primipara; 20 years.	After birth	Violent	Bleeding, chloral and chloroform.	Cure	This cure is rather attributable to chloroform.	Albumen.
47	1875	Allo	Id., p. 417	10th child; 40 years.	After birth	Several	Unsuccessful trial of purgatives; treatment with chloral.	Death	Chloral had been successful at first, but the woman was neglected, and no physician called subsequently.	?
48	1875	Dujardin-Beaumetz.	Soc. Thérap., meeting of Oct. 17, 1875.	Primipara	Before birth; at commencement of labor.	?	Chloral, chloroform and bleeding.	Death		?
49	1875	Chiarleoni	Gaz. Medica Italiana Lombardia, 1875, No. 6.	Primipara	Before birth	?	14 gr. chloral in 24 hours.	Cure		?
50	1876	Guéniot	Gaz. des Hôpitaux, 1876, No. 14.	3d preg'ancy; 32 years.	Before labor; in 8th month.	22, violent, in 8 days, before birth; one after.	Bleeding and chloral	Cure	Edema; fetus recognized dead after 4th fit.	Albumen.
51	1876	Cersoy	Le Scalpel, 1876; issue of October 1st.	Primipara; 17 years.	One month before birth.	10, irregularly scattered over 10 hours.	Chloral, bleeding, morphia, and bromide of potash.	Cure		Considerable albumen.
52	1876	Bourguet	Gaz. Hôp., 1876, p. 98	Primipara; 27 years.	During labor	?	Chloral by mouth	Cure	Pupils dilated	?
53	1876	Bourguet	Id	Primipara; 23 years.	In 8th month, and return of fits a few days thereafter, while in labor.	?	Chloral by mouth	Cure		Enormous proportion of albumen.
54	1876	Laborde	Courrier Médical, issue of March 4, 1876.	4th pregnancy; 36 yrs.	After birth	Every 10 minutes.	Unsuccessful use of bleeding; chloral by mouth.	Rapid cure in spite of bronchopneumonia.		Slightly albuminous.
55	1876	Roussen	Courrier Médical, March 1876.	Primipara; 22 years.	Before birth, during labor and after birth.	11 in 9 hours.	Chloral and bleeding	Cure	Edema	?

MORE RECENT CASES REPORTED BY LÉO TESTUT, OUTSIDE OF THIS TABLE.

Also, one successful case, treated by Intra-Venous injections, Oré's method.

No.	Year.	Name of Authors.	Bibliographic Indications.	No. of Birth. Age.	Commencement of Fits. What Stage of Labor.	Character and Frequency of Fits.	Treatment and Doses of Chloral used.	Results.	Observations.	Condition of Urine.
56	1874....	Testut.........	....	Primipara; æt. 26 years.	Before and after birth.	?	Chloral; 120 gr. by rectum.	Cure.......	Forceps were used.	Urine albuminous after the convulsions.
57	1873 ...	Lannelongue ..	....	Multipara; æt. 29 years; 3d child.	Before birth ...	Every few minutes.	Chloral and chloroform.	Cure	Dilatation and forceps.	Edema since the 8th month.
58	....	Lannelongue ..	....	Primipara; æt. 24 years.	Before and after birth.	Numerous.	Bleeding and calomel of no avail, chloral by rectum.	Cure......	....	Albuminuria.
59	1875....	Flornoy..	....	Multipara; æt. 30 years.	Before and during birth.	10 in 4 hours; last 30 minutes in duration.	Chloroform and chloral	Cure......	Twins: children died 4 days after birth.	Urine slightly albuminous.
60	1876...	Flornoy........	....	Primipara...	After birth	Severe........	Chloral by rectum	Death on 4th day from acute mania.	....	Urine quite albuminous.
61	1877 ...	Labat.....	....	Primipara; æt 42 years.	Before and during labor.	Very severe ..	Chloral and chloroform.	Death seventh day from empyema.	Fits stopped by chloral.	Urine strongly albuminous.
62	1878....	Bellmunt	Revue de Thérapeutique, Aug. 1, 1878, p. 110.	Young woman.	Before birth.	Severe	Chloral by intravenous injection.	Cure.	Forceps. Child dead.	?

Five additional cases, where chloral was used successfully, are reported at a later date, three by Bourdon, and two by Testut himself. No details are given.

states that he has used chloral in a large number of instances with success, and commends it highly to the profession.

> "The patient was seized with eclampsia as the head of the child was descending to the inferior strait. The forceps were applied and the delivery accomplished without difficulty. In a little while, a second attack supervened, and a large dose of chloral was given. The convulsions did not recur. There had been a large quantity of albumen noticed in the urine before confinement. Under milk diet this rapidly disappeared."

Blot[1] utterly condemns the induction of premature labor in these cases, and speaks very highly of the use of chloral.

Fordyce Barker,[2] Tarnier,[3] Spiegelberg,[3] are not in favor of the induction of premature labor in these cases.

De Forest Willard,[4] of Philadelphia; McGibbon,[5] Sidey,[6] Kirk,[7] Dujardin-Beaumetz,[8] Pujos,[9] and Gassot[10] have used chloral in eclampsia without any good resulting.

Playfair,[11] while admitting the great value of chloral in this disease, cautions that large doses may so disorganize the blood as to finally favor a fatal termination. Stephen Monckton[12] gives a case that, he believes, supports this view. It is barren of facts that would demonstrate the point clearly.

Overwhelming proof of the efficacy of chloral in this disease is given by Leo Testut. The preceding table taken from his very able paper shows this.

In some of the instances there given, chloral really cured the eclampsia, the patient dying from an affection that was in no way dependent upon the drug given. In some of the fatal cases, the amount of chloral used was absurdly small.

The following tables from Charpentier's Thesis[13] are of special interest as showing the relative value of the different plans of treatment, and especially the superiority of that by chloral.

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[1] Op. cit.

[2] AM. JOUR. OBSTETRICS, July, 1878.

[3] Quoted by Barker as above.

[4] By letter.

[5] Edinburgh Med. Journal, 1870, p. 1139.

[6] Ibid.

[7] St. Louis Eclectic Medical Journal, Nov., 1879.

[8] Bull. Gén. de Thérapeutique, Vol. 89, 1875, p. 426.

[9] Ibid., Vol. 89, 1875, p. 366.

[10] Gaz. des hôpitaux, 1875, p. 18.

[11] Op. cit.

[12] Lancet, June, 1871.

[13] Op. cit.

Treatment by revulsives (vesication, sinapisms, and antispasmodics—not chloral).

No. cases	19
Cures	8
Deaths	8
Fate unknown	3

General mortality 50%.

Treatment by bleeding, leeching, cupping, etc., Clinic, Paris.

	MORTALITY.
Simple bleeding	41 %
Repeated bleeding	54 "
Mean average	45 "

Maternité Hospital.

	MORTALITY.
Simple bleeding	36 %
Repeated bleeding	33.3 "
Average	34.7 "

From the literature on the subject.

	MORTALITY.
Simple bleeding	30.6 %
Repeated bleeding	21.6 "
Average	26 "

Average mortality of all cases of bleeding, 35%.

Treatment by purgatives.

No. cases	28
Cured	10
Died	13
Fate unknown	5

Mortality 56.5%.

Chloral alone used.

No. cases	29
Cured	27
Died	1
Fate unknown	1

Mortality 3.4%.

Treatment by anesthetics (ether and chloroform).

No. cases	84
Cured	69
Died	15

Mortality 17.8%.

Subtracting from these, seven cases treated successfully by chloral, we have a mortality of 19.4%.

Surgical treatment — Births without version or forceps.

No. cases	278
Cured	202
Died	71

Mortality 26%.

Forceps used.

No. cases	188
Cures	131
Deaths	52

Mortality 27.6%.

Version.

No. cases	28
Cured	18
Died	10

Mortality 35.7%.

Mortality average of all surgical cases 29.7%.

Chloral treatment — Chloral used after other medicines had failed.

No. cases	11
Cured	10
Died	1

Mortality 9%.

Mixed Treatment (Bleeding and Purging).

No. cases	52
Died	9

Mortality 17.3%.

Chloral and other medicines used.	*Chloral treatment* (*all cases*).
Mortality 13.3%.	Mortality 7.4%.

Dr. More Madden[1] condemns the full reliance that is placed upon chloral by some practitioners. He says that in severe cases it is of no service, and gives rise to a neglect of other and more important measures. He adduces no facts tending to sustain this view.

Some of the failures here given are undoubtedly due to the fact that the drug was not properly administered, or was given in too small doses.

Testut insists on the use of large doses, and, whenever possible, gives the drug by the rectum. To pass the drug well up, he attaches a soft catheter to the end of the syringe, thus forcing the medicine high up into the large bowel, where, he says, there is to be obtained more rapid and thorough absorption, and less liability to expulsion during a pain.

He claims that chloral is a direct irritant to the gastric mucous membrane, and should never be given in that way when it can be given by the rectum. In case it is impossible to administer the drug by either of these channels, he advises intravenous injection after the method and with the instrument of Oré. He condemns the hypodermic plan as producing extensive sloughing.

By the rectum, he uses ʒ i. as an initial dose, and fifteen grains every hour, until the spasms have ceased. Should there be any symptoms of another eclamptic fit, he meets it *at once* with a fifteen-grain dose. The solution used is 1–10 or 1–20. He condemns Whidborne's plan of using rectal suppositories, claiming that they are apt to produce sloughing.

Fauny[2] found that it was necessary to give large doses. Fauny's formula reads as follows:

℞ Chloral hydrate	10 grammes.
Syrup gooseberry	100 "

He gives four grammes of chloral as the initial dose, and then, if necessary, two grammes every quarter of an hour, until the ten grammes have been taken. It may be given by enema or suppository, if it cannot be taken by the mouth;

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[1] Dublin Med. Jour., June, 1878.

[2] Op. cit.

but, he says, that if labor is progressing, it may be forced from the rectum during a pain.

In extreme cases, it may be given subcutaneously, the physician bearing in mind, however, that severe abscess and inflammation often follow its use in this way.

If the convulsions occur during labor, chloral has a triple action, *i. e.*, as an anti-convulsive, a dilator of the os and strengthener of the pains, and as a partial anesthetic. From a consideration of the facts brought forth in the section of this article devoted to the use of chloral in labor, we would be led to believe that it would prove of the greatest service in those cases of *reflex eclampsia*, due to uterine irritation or irritability. It will be seen, however, that chloral has proved itself of the greatest service in *all* forms of puerperal convulsions when given in sufficiently large doses.

Liebreich,[1] accepting Frerich's theory of uremic poisoning, *i. e.*, that it is due to ammonia in the blood, a result of decomposed urea, believes that, in convulsions of uremia, the chloral acts partly as an anti-convulsive and partly as a neutralizer of the ammonia, on the supposition that in the blood in its decomposition chloral gives up a small amount of hydrochloric acid. At best, this is but a supposition.

THE NAUSEA AND VOMITING OF PREGNANCY.

Chloral has, in many instances, been used in the nausea and vomiting of pregnancy, with excellent success. Thus Dr. George J. Engelmann, of St. Louis, Mo., says:[2] "In the vomiting of pregnancy, I rely almost wholly upon chloral." Dr. Robert Battey, of Rome, Ga., also speaks highly of it. Dr. William L. Richardson, of Boston, Mass., reports[3] three cases where chloral served to stop the vomiting and permit the taking of nourishment, after other remedies had failed. One patient was three and a half, the other two, two months advanced in pregnancy. In two cases, it was given by the stomach, in the other, by the rectum, it having been vomited when given by the mouth. He says: "Although chloral has proved successful in a number of cases in which I have tried it, I have, however, twice failed in obtaining, under apparently similar circumstances, any benefit whatever from its use."

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[1] British Med. Jour., Mar. 2d, 1872.

[2] By letter.

[3] Gynecological Transactions, Vol. 1, 1876, p. 246.

Dr. W. H. Morse reports[1] the following:

Mrs. M., æt. 28, third child, very anemic. Had just passed a small renal calculus. There was persistent nausea and vomiting for eleven days. Complete relief was afforded by chloral given per rectum. Afterwards, chloral and bromide of potassium were used.

Dr. J. Wm. Walls,[2] of Baltimore, Md., has used chloral by the rectum with excellent results in this affection.

Dr. J. H. Scorff[3] used twenty grains of chloral by the rectum three or four times daily, with success in two cases.

Dr. D. B. Simmons, of Yokohama, Japan, was one of the first to use chloral for this purpose. He reports a number of cases thus treated successfully,[4] and others at a later date.[5]

I have used it myself in several cases with good success, and have found it of absolutely no service in two cases. Both of these patients were advanced to the fifth month. It would seem, from a study of these facts, that chloral is especially adapted to those cases where the vomiting is due to reflex irritation. This is borne out by analogy.

Thus J. Ogilvie Will[6] found chloral to act promptly and efficiently in seventeen out of eighteen cases of sea-sickness. Jacobi[7] used it for the same purpose, subcutaneously, with success. Giraldes,[8] Obet,[9] and Döring[10] have also used it with success, the last-named gentleman, however, believing that it acted in allaying nausea and vomiting, simply by producing sleep.

Furthermore, Whitehead[11] has immediately and permanently relieved hiccough that had lasted thirty-six hours, by thirty grains of chloral, after other remedies had failed.

Garipuy[12] has relieved the sickness produced by riding backwards in a carriage or railway car, by chloral.

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[1] New York Medical Record, Oct. 15th, 1874.

[2] By letter.

[3] (Virginia Medical Monthly) New York Medical Record, Jan., 1880.

[4] New York Medical Record, June, 1874.

[5] Am. Jour. Obstetrics, April, 1879.

[6] Lancet, July 20th, 1872.

[7] N. Y. Med. Record, Nov. 15th, 1869.

[8] Union Médical, Nov. 19th, 1874.

[9] Archiv. de Med. Navalla, June, 1875.

[10] (Wien. Med. Wochenschrift) Lancet, June, 1871.

[11] N. Y. Med. Record, 1871, p. 57.

[12] Révue Méd. de Toulouse, Aug., 1876, p. 234.

That chloral may act efficiently in cases of stomach trouble that are purely local, is proved by the observations of Ademole[1] (nocturnal emesis), Hertzka[2] (gastric ulcer), Marjolin[3] (gastric trouble from burns), and Adolph Kjellberg[4] (gastric enteritis of children).

When given for the nausea and vomiting of pregnancy, this drug had best be exhibited in the form of enemata, after the manner of Griffiths, already spoken of. Dr. H. J. Robinson,[5] of Jacksonville, Fla., has given it by the rectum in starch or gum water, with success.

If given in too concentrated solution or for too long a time, sloughing of the rectum may occur. One such case is reported[6] by Dr. George T. Erwin, of Danville, Ky. The same holds good with reference to its exhibition by the stomach, Leo Testut[7] having found that it produces hyperemia, ecchymoses, and ulceration in the gastric mucous membrane of animals, when given in strong solution. His article is accompanied by some very fine colored plates, showing these changes.

THE INDUCTION CURRENT IN PARTURIENT UTERINE ATONY.

BY

WILLIAM R. D. BLACKWOOD, M.D.,

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(With two woodcuts.)

EARLY in the summer of 1879, Mrs. X. Y. Z. was sent to me by a professional friend for treatment by electricity for obstinate neuralgic dysmenorrhea which had resisted thorough and well-directed attention as ordinarily practised in such cases. Quinia in bearable doses was already useless, and morphia was rapidly losing its value, except in an amount which her physician declined to maintain because of the increasing habit unfortunately allied at times to the use of that invaluable remedy. She had been for five years growing gradually worse, the disease developing itself shortly subsequent to the birth of her last child, at which time she nearly lost her life from post-partum hemorrhage, and her history further showed this complication to have occurred at each of three anterior confinements.

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[1] L'Imparciale, Mar. 17th, 1875.

[2] St. Louis Med. and Surg. Journal, July, 1878.

[3] Gaz. des hôpitaux, 1870. p. 227.

[4] (Nord. Med. Arkiv, Vol. 2, No. 31) Lancet, May, 1880.

[5] Turnbull, Anesthetic Manual, 1879, p. 224.

[6] By letter.

[7] Bulletin Gén. de Thérap., 1876. p. 332

She was treated by me in the manner described in a paper on this subject published in the Philadelphia *Medical Times*, Oct. 9th, 1880, and in the proceedings of the Philadelphia County Medical Society, Vol. III.,[1] 1880–81, and illustrative cases of which

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[1] At the request of the editor of this Journal, a brief synopsis is given of the method referred to.

In some of its varied forms electricity has been repeatedly used in the treatment of uterine diseases with widely differing phases of success, but from failure to secure uniformly good results, its employment has almost entirely fallen into disuse. From testimony not capable of rejection, its great value when properly applied has been repeatedly demonstrated in uterine therapeutics, particularly in the case of amenorrhea or dysmenorrhea, both of which maladies are commonly encountered, and either of which, in their several varieties, are, at times, extremely hard to manage, as shown by results in ordinary methods of treatment.

The first requisite in electro-therapeutics is *good apparatus*, and the greater part of the mechanism in possession of the faculty is wretchedly made to begin with, generally left to care for itself when not in service, and consequently either entirely unfit for use when needed; or unequal to the demand required, in which case the inevitable failure resulting (just as would follow the administration of worthless drugs) is ascribed to the plan of treatment, and confidence of patient and physician is alike lost, when no fault whatever lies in the battery.

Uterine electrical applications must not be made *hap-hazard*, either as concerns the way in which applied, the time occupied at each sitting, or the dosage administered. Nine physicians out of ten are utterly ignorant of the first principles of electro-physics, a faradic machine, valued principally for its cheapness, fills their idea of the armamentarium needed, and I have known dysmenorrhea to be treated by sending as strong induced currents up and down the woman's arms as could be tolerated through the instrumentality of a pair of tin handles—one held in either hand. I had a difficulty in convincing that patient who came to me soon thereafter that galvanism might be of value in her case, but happily she was cured in spite of her disbelief.

The applications must be LOCALIZED, and in addition to thoroughness, they must be continued until the desired effect is obtained; in some cases from six to twelve months elapsing before permanent relief is had. Either or both galvanism and faradism may be indicated, and neither will replace the other indiscriminately. In *neuralgic* dysmenorrhea, galvanism is demanded, especially should the ovaries be implicated. The better mode here is to use the intrauterine rheophore with the negative pole, the positive resting on the lower lumbar region, on either ovary or both, by means of a divided conductor armed with moderate sized sponge or carbons. Mild currents of five to ten millivebers (15 to 30 cells) for ten to fifteen minutes, tri-weekly or daily, according to circumstances are requisite. Static electricity acts favorably in neuralgias of any type, and are given in other articles in various journals during the past ten years, with the result of completely removing her difficulty, and her menstrual function was maintained free from discomfort until the ensuing January, when she became pregnant after an interval of nearly six years—her other four lyings-in happening only sixteen months apart. The electrical applications, which had for the preceding three months been reduced to a single treatment a day or so before her period, simply for its sedative effect, were discontinued upon her probable condition becoming apparent, and thereafter some little discomfort only was occasionally referred to the pelvic region consequent upon the normal congestion of the organs in their newly-awakened activity. Nothing, however, was needed or done beyond attention to the accompanying nausea, which was readily controlled by oxalate of cerium in ten-grain doses before rising from bed in the morning. She went on to full term without accident, and signs of impending labor manifested themselves during the second week of October, when I was requested by her physician to attend her. Much anxiety was shown by herself and family lest the usual flooding should prove serious, and although I assured her to the utmost of my ability that everything would be right and that her restored health and strength would so certainly banish her former complications, I was exceedingly uneasy as to prospective danger, for nothing in all my experience has so utterly prostrated me physically and mentally as the strain endured during a case of uterine hemorrhage subsequent to parturition, and the fear lest it return after my leaving the already nearly moribund patient, when it was apparently fully checked. Labor came on two days after the pre-

general faradization after local galvanism tones up the system very effectually in the majority of instances of so-called and mis-named neurasthenia. In *obstructive* cases from flexions or stenosis of the cervix, faradic currents are the most valuable, and several of my severest cases have been relieved of the dysmenorrhea, even though the flexion was not entirely removed. In these instances, the rigidity was so far lessened as to interpose practically no obstacle to the flow through the cervix, which dilated and became pliable, promptly at the commencement of menstruation. *Congestive* cases usually result from impeded pelvic circulation caused by errors in diet, dress, or habit. Here, of course, predisposing factors must be eliminated, and this done faradism will condense the flabby uterus with remarkable rapidity. I have both in hospital and private practice repeatedly had better results follow half a dozen electrical applications, in one week only, than were had in six weeks under other approved methods. I usually galvanize the dorsal and lumbar spine at each sitting after faradization of the uterus. Descending currents (the positive nearest the nerve-centre, the negative in or near the organ) I prefer, and stable galvanic applications are the rule. With induction currents, of course, the direction is not important, although in several machines now to be had both uni-direction and equal alternating currents are obtainable. The difference of opinion held by electrologists as to these points cannot here be noted or defended, but my own ideas are the result of satisfactory experiment in a list now large enough on which to base reliable conclumonitory symptoms, but the uterine contractions were short, far apart and ineffective, the entire day elapsing without material progress. The os was somewhat rigid and undilatable, but a few doses of opium relieved this condition, yet although the "pains" became better toward bedtime, they were evidently worrying and dispiriting the patient to a much greater degree than they compensated by advancing the labor. She stated this as her usual condition, and averred that, unless a change was had, the termination would be as before, and the result she firmly believed would be fatal. All my assurances were unheeded, and the prospect, after an otherwise hard day's work, was not at all cheering to myself as the night drew on apace. Ergot in her present state was not to be thought of. I must stay beside her bed, yet that alone was valueless to her, and a waste of time and needed rest to myself. Determined to induce uterine contraction and to maintain it at regular intervals and for a proper length when secured, I gave her a small dose of opium and went home for a portable Faradic battery, and, assuring myself of its being in good order, I returned to the case. There had been no advance during my absence. Placing one pole, armed with a large sponge-electrode, over the lumbar spine and confiding it to the nurse (an unusually intelligent woman), I held the other polar-electrode in my left hand, and beginning with a very mild secondary current, I placed my right hand over the uterine protuberance, the act at once causing gentle yet firm contraction of abdominal and womb muscle alike. This was maintained during a few seconds and then gradually interrupted by lessening the pressure of my hand on the abdomen until relaxation occurred. After a short rest the maneuvre was repeated with a like result, and the patient

sions. One case only of genuine *membranous* dysmenorrhea has been treated by me with electricity, and in this instance, a strong galvanic current was used. The case was stubborn, but finally yielded, and the lady went on to the menopause with excellent health.

A *water* rheostat is invariably interposed in the circuit through which either current is accurately, certainly, and pleasantly regulated. All applications commence with little or no electro-motive force, are increased to the definite strength allotted to that particular patient, and after proper duration are reduced to zero without reversion, interruption, or shock from broken contact, as the *séance* terminates. The density of current is invariably determined by a galvanometer divided into units of absolute strength as developed by the battery when in perfect order. A weak battery hence is at once shown, and additional cells to bring it up to par are intercalated as required. The Leclanché or the modified Daniell element is a desirable one in electro-therapeutics. For the induction current the Smee or Grenet are both excellent, and either should be tested by the galvanometer frequently and kept well up to insure equable tension—a matter not determinable by sensation or graduated draw-tubes and sledges. Notes should be kept of all cases for guidance as they progress, and the patient should be required to undergo thorough treatment or not at all, and few refuse after the discouraging failure too often encountered in canonical methods of treatment.

expressed herself as not only gratified that her "pains" were thus evidently under complete control, but were in every way bearable as compared with those which nature supplied in such a dilatory manner. Satisfied with the procedure, I set about modifying it so as to relieve my own muscles from the current, of which I get enough in ordinary practice without making a night of it, as might be required here. I fastened the sponge-handles directly to the spine and abdomen with elastic bands obtained by the destruction of a pair of suspenders (the husband's, not mine). Under this arrangement, not only could the current be applied at will, but its intensity—with which the degree of uterine contraction accurately coincided—was regulated readily. In one hour after the inauguration of this method the os was dilated to treble its former size; it was softer and much more easily stretched. Although the "pains" occurred now without the electric stimulus, they were, when left to themselves, still useless and slow, consequently the methodical process of induction was sustained until the close of the second stage of labor, which terminated in three hours precisely, as though it were in all respects normal. The infant showed no sign of undue compression, nor was it in any manner apparently injured by the long-continued electrical stimulus, a portion of which it is fair to suppose must have traversed it in its confined position, lying as it did directly between the poles of the battery. The current was raised very considerably to urge the delivery when the perineum bulged, and no more convincing proof of its effect could be desired than that offered by the distention of the vulva proportionately with the intensity of the battery. The infant cried lustily, and the nurse declared strenuously that it laughed at me directly its eyes were opened and said "doctor" as plainly as she could do herself. The electrodes were removed after the umbilical cord was cut and the uterus held in the hand through the abdominal parietes. No voluntary effort toward delivering the placenta took place, and after waiting fifteen minutes, meanwhile maintaining my grasp, it was ejected by Credé's method, which I ordinarily employ. There had been a disposition to flabbiness during the interval between the second and third stages of labor, and when my hand was removed after the delivery of the placenta, hemorrhage at once set in. The usual methods were tried without avail, and as my patient's fears were now about being realized, I wasted no more time in this way, and *compelled* rigid contraction by the current till the womb was as hard as a cobble-stone. Keeping this up by gentle touches for half an hour, I felt justified in leaving the further care of the lady to her nurse, who had now become familiar with the use of the battery, should it be needed, and I found her comfortable and content in the morning, thankful for her relief and convinced that without the treatment practised she would not only have passed, as before, several days' exhaustion, but have lost her life. Without an absolute indorsement of her views, I felt then and I feel now that she had a narrow escape, and if unfortunate enough to meet a similar case hereafter, I would without doubt pursue precisely the same course and with perfect confidence in its result. Her convalescence was good, and her health has since then remained perfect, no dysmenorrheal trouble supervening on her menstruation, which is now again established.

In using electricity against amenorrhea, or dysmenorrhea, it is pre-eminently necessary that pregnancy be excluded by careful investigation before commencing. The instruments needed are represented in the cuts, as also the better way of using them. No. 1 is a double rheophore of my own design, through which the current is confined entirely to the uterus. The straight rod, which is adjustable to the depth of the uterine canal, is insulated except at its extreme point, from which the current escapes, and flowing through the womb to the cervix, it enters the large ball and returns to the battery by way of the curved rod, which is also insulated throughout. No. 2 is my modified intrauterine sound insulated all except the curved portion which is introduced as far as needed into the cervical canal with No. 5, which is the ordinary sponge-handle, applied over the hypogastric region. Nos. 3 and 4 are ball and cup rheophores, whose use is obvious, especially in reaching the ovary. The diagram illustrates the method of electrization of the womb by double electrodes externally in conjunction with the intrauterine sound (Fig. 2).

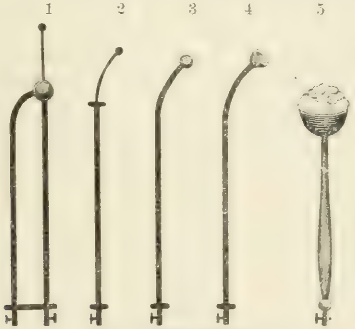

FIG. 1.—Rheophores.

I am not aware that *in labor* such a course as is herein described has ever before been practised, although faradic electricity is well known to be capable of inducing contraction of the uterus, and has been employed for the express purpose of so acting in post-partum hemorrhage, just as done by myself in this case. My object here is to show that by proper and judicious management "pains" can be induced and controlled at just such periods of time as may be desired; that the completeness of the contraction is assured through the tension or electro-motive force of the current employed; that in atony, both before and after delivery, we have a reliable and efficient servant to do our will, and to do it without injury to the stomach or other organs, which are unfavorably at some times and dangerously at others influenced by drugs, and one which acts instantly, not being dependent on the power to absorb, which is frequently in abeyance in the stomach when most needed, or on the ability of the heart and arteries to propel, which is greatly lessened after the circulatory system is nearly drained in cases of hemorrhage before the flaccid uterus can be stimulated to full action, without which a life must be lost, and lost at a time when urgently needed for the protection and sustenance of a new-born life, whose value hereafter no one may say, and the effect of whose loss no one may measure.

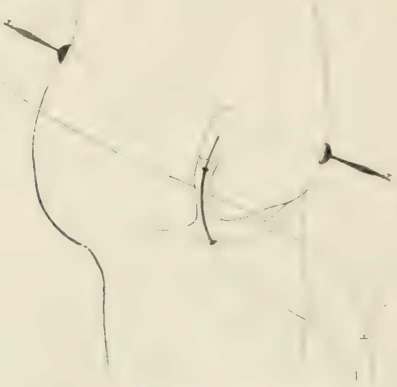

Fig. 2.—Direct Uterine Electrization.

It is unnecessary that a heavy machine be used in circumstances requiring measures such as above described. In my obstetric bag, together with my forceps, catheter and attached rubber tubing to conduct the urine to the vessel beneath the bed, thus obviating the discomfort and liability to soil the bedding, a syringe for hot-water or vinegar injections, a piece of strong carbolic soap and a box of cosmoline, I have a small modified Gaiffe induction machine, as made by Drescher, of New York, which can be carried in the coat-pocket, and which is amply powerful to produce the requisite muscular contraction. It is not so finely made as the larger apparatus, nor in so small a machine can a long-continued action be secured, but in all ordinary conditions it serves a good purpose and is a valuable adjunct. I preferred a larger battery under the circumstances, because the demand on it was heavy and likely to be prolonged. Cases of great uterine atony have been rare with me in a now extended list of confinements during twenty years past, and the few I have had have waked up at the last under ergot or other means, but this case was unique, and as my handling of it was novel to myself and may be so to most practitioners, I place it on record, believing it justifiable, and also fully convinced that the successful termination was due to the means employed, and to that alone.

246 NORTH TWENTIETH STREET.

THE THIRD STAGE OF LABOR:

AN ETHNOLOGICAL STUDY.

BY

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(With five woodcuts.)

LABOR seems completed with the expulsion of the child, the one act upon which the efforts of the accoucheur and the expectations of the patient have centred, the culmination of hours of suffering and anxiety ; both feel as if their work were completed, and but little thought is given by either to the remaining afterbirth which is usually expelled without much suffering to the mother, and if nature be not interfered with, rarely calls for any exertion on the part of the attendant.

Accidents occurring during the birth of the child are immediately followed by alarming results, while those happening during the delivery of the placenta can be ignored at the time. although the consequences are often disastrous. The third stage of labor accordingly excites but little interest, and is, I may almost say, unduly neglected; some radical changes have of late years been made in its treatment, but, although advocated by able obstetricians, they have by no means met with the hearty concurrence of the profession at large, of which they deserve and which their importance justifies.

My attention has been recently directed to what I may call the natural management of labor, or the customs observed during childbirth by such people as are not yet governed by modern obstetric law, and who follow the dictates of instinct in this purely mechanical function of our animal existence; my researches in regard to the position of women in labor have shown me the correctness of the course adopted by those untutored people with whom methods have been traditionary for ages which have not until now reached us, in this advanced nineteenth century, as the teachings of our most scientific obstetricians; and I deem it of interest, if not of some little practical importance, to study the management of the placenta, indeed the treatment of the patient during the third stage of labor, among uncivilized people who are as yet forced to rely upon their instinct for their obstetric practice, and upon whom the obstetric laws, and I may say obstetric fashions, of to-day have not yet encroached. It is only of late that ethnological studies have developed and have brought to light the innermost life and most private and secret customs of those interesting children of nature; but very little attention has, however, been paid to their obstetric practices, and above all to this very uninteresting and unimportant detail.

The management of the third stage of labor has received so little attention that I shall be obliged to confine myself, by reason of the scanty data at my command, to the leading points; I nevertheless hope to be able to develop the more important features sufficiently to show that these untutored people, following the guidance of instinct, have, as a rule, pursued a much more correct practice than can be attributed to the followers of scientific midwifery; above all they have fully appreciated, in resorting to abdominal expression, the dangers of the *vis a fronte*, and the importance of the *vis a tergo* as their main reliance for the speedy and successful removal of the placenta. Nor are the data as broad as I should like to see them; I can gather but little from the records of travellers or from the pages of history; the information I have been able to obtain is almost altogether in regard to the customs now observed among the North American Indians, and for this I am indebted to the kindly interest shown by the surgeons of the United States Army, and the physicians of the Indian Agencies who have freely responded to the questions I have put in the circular sent out through the Smithsonian Institution by the generous offices of Major J. W. Powell, the director, and others of the gentlemen connected with the Bureau of Ethnology, above all Dr. H. C. Yarrow.

I shall discuss, first, the management of the third stage of labor in simple cases, as it is customary among the various tribes, and this will be best understood by describing, I., those methods which are adopted for the purpose of expelling the placenta, in which the patient retains the same position which she occupied in the delivery of the child, and, of these, the one ordinarily practised is by the employment of a *vis a tergo*, most commonly by a force applied externally from above downwards, by manual expression; and secondly, by action of the diaphragm, by the use of emetics. Much less frequent is the employment of the *vis a fronte*, that fatal traction upon the cord, which forms the third group. Somewhat different from these methods is a fourth, which I have classified under II., comprising the customs of all those tribes who look upon a change of posture as the important element for the purpose of accomplishing the expulsion of the after-birth; a change of position is made immediately after the birth of the child, and the patient assumes a different posture from the one occupied during the earlier stages of labor. This is not frequent in ordinary cases, but is a usual resort in case that some difficulty is experienced in the removal of the placenta. I have then considered under different heads the treatment of simple and difficult cases, and will next review the management of the cord, as it may be of interest to note the usual time of cutting the cord and the methods of cutting and tying it; finally I will briefly indicate some of the more peculiar customs, and the, to us, strange views entertained with regard to this stage of labor.

MANAGEMENT OF SIMPLE CASES.

The placenta delivered in the same position which has been occupied during labor pains and the expulsion of the child.

Manual expression.—Among our Indians, as among all uncivilized nations, external manipulations are resorted to wherever good can be accomplished by them, and in obstetric practice massage and expression are freely and effectively used. The third stage of labor is a very short one, the placenta usually escaping very soon after the birth of the child; and by far the most common, the prevailing treatment in fact, is the one we will now consider. The patient and her assistants retain the positions relatively occupied during the birth of the child; the parturient, as is commonly the case, kneeling, whilst an assistant, who kneels or stands behind her, with her arms around her waist and the palms of her hands upon the fundus of the uterus, keeps up a steady pressure upon the contracting organ, and in case that the muscular action is not sufficient for the expulsion of the after-birth, she hastens its progress by an effective kneading. Moreover, we know that the kneeling, squatting, and semi-recumbent positions are those in which the abdominal muscles can be most effectively used for the purpose of expelling any of the contents of the abdominal cavity. This is true of the Commanches, of the Klamath, the Crows, Nez-Percés, Peorias, Shawnees, of the Kiowa, Caddo, Delaware, Wyandotte, Ottawa and Seneca tribes. The Clatsops carry out this idea perhaps even more effectively by placing a bandage about the patient's abdomen immediately after the expulsion of the child, "to keep the placenta from going back further into the body." And I may here state that this is the ruling idea in their treatment, as they dread such an accident very much, and unless the placenta is speedily delivered, the uterus responding to their manipulations, they are at a loss what more to do, and the patient is usually left to her fate, rarely escaping the consequent septicemia. The Dakotas permit the patient, if exhausted by the labor, to leave the kneeling posture and lie down during this last stage. Some of the tribes belonging to the great Sioux nation—the Blackfeet, Uncpapas, and the lower aud upper Yanktonans—follow this most judicious mode of delivering the afterbirth. In case that steady pressure from above downwards upon the fundus, and kneading of the tumor, does not suffice, the abdomen is rudely kneaded with the clenched fists, in various directions, in their endeavor to push the placenta out, as I gather from an interesting description of a case of retarded delivery of the placenta among the Umpynas.

The Kootewais kneel during labor, and after expulsion of the child continue to knead the abdomen, exercising the same pressure downward as when aiding the descent of the child, and in case this fails, they introduce the hand into the vagina and remove the placenta, giving the woman one joint of an unknown root to stop the hemorrhage, following it by another joint in fifteen minutes or half an hour until it does stop, with the idea of checking the hemorrhage gradually. They let the patient bleed to a certain extent, and if it exceeds their idea of what she may well lose, they give the root. No reason is given why they should not stop the bleeding at once. This is one of the very few tribes who have any knowledge of the removal of the placenta by the introduction of the hand in utero. The Papagos also seem to remove the placenta forcibly, if it does not speedily come by natural means. The squaws of several tribes are delivered in a squatting posture, and among them, also, the placenta is delivered precisely as the child was, the patient and her assistants retaining the same position, and the same pressure and manipulations being kept up. This is true of the women of the Laguna-Pueblo, of the Coyotero-Apaches, and some of the tribes of the Sioux nation. The Brulé, Loafer, Agallala, Wazahzah, and Northern—among these, as well as other of the Sioux tribes, and the Kiowas, also, a change of posture is made. The squaw belt is often used, and the placenta is delivered almost immediately after the child, by the gradual tightening of the broad leather belt, which is strapped above the womb as soon as the child has appeared.

The women of the lower order of Mexicans, who are also usually delivered in the squatting posture, sometimes kneeling, follow the same custom as their Indian neighbors, but of them I am told that the third stage of labor is a much longer one. The midwife busies herself about the new-born child, while the patient is kept in her uncomfortable position, kneeling or squatting, with her rear and lateral assistants, until the placenta is expelled. This takes place seldom in less than half an hour, but generally within an hour; if not, the patient receives a more or less violent shaking, according to the exigencies of the case, the rear assistant, with her arms about the patient, actually shaking her up and down, and, if this does not answer, as a last resort, efforts are made to provoke vomiting. A decoction of some kind, either laxative or nauseating, is given the patient for the purpose of assisting the expulsion of the placenta; but among the Mexicans a cup of corn gruel, *atole*, is regularly given after the expulsion of the child. Among those who retain the semi-recumbent position in which they are usually delivered are the Wacos, Hoopas, lower Klamath, and Penimonee. This is a convenience for the midwife or assistant, as she can also assume a more comfortable position, and knead the abdomen to better purpose.

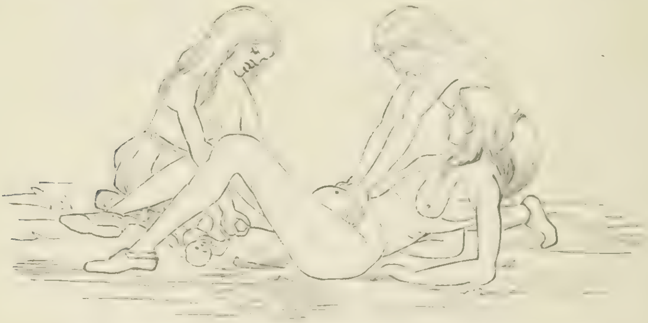

FIG. 1.—Manual expression of the placenta, Penimonee Indians.

The Indians of the Pacific coast follow the same custom, and they, as well as all other tribes, seem anxious to attempt the speedy expulsion of the placenta, so that an effort is always made to assist the uterus in casting off the remaining afterbirth as soon as the child has been removed, and placed in a safe place. The accoucheur makes gentle, but tolerably firm traction on the cord with one hand, and with the other manipulates the abdomen over the uterine globe. At the same time, if thought necessary, the assistant will gently press the abdomen; both hands, with the distended fingers, being laid above the womb. At times, he does still more by kneading, with a view to pressing the secundines out of the uterine cavity, but if these efforts fail while the patient is in their usual obstetric position, the semi-recumbent, she is raised to an erect position, and then, well supported, the manipulations of the uterine globe are continued, and a more firm traction is made upon the cord.

Of the Flat-heads and Pend-oreilles, I am told that the placenta, in almost every case, is delivered with neither massage nor expression nor traction on the cord, nature, unaided, completing the labor; very decided means are, however, resorted to in case delay should occur, which is very rare. Among those who assume the semi-recumbent position are also the Utes, Navajoes, Apaches, and some of the Nez-Percés, who assist nature by kneading the abdomen, but rarely by actual expression or traction upon the cord; they, however, expect to hasten the expulsion by anointing the abdomen with greasy unguents or decoctions of herbs.

The Burmese are among the very few people who adopt a *dorsal decubitus* as the obstetric position, and forcibly expel the placenta more by beating the abdomen than well-directed manipulations, and in extreme cases, by sitting or standing upon the abdomen and pressing with the feet upon the uterine globe.

The Makahs, of the Neah-Bay agency, retain the sitting posture in which the child is delivered, but whilst this, to them, apparently simple proceeding is always managed without professional assistance of any kind, skilled help is called as soon as the child is born. Until then nature is allowed to take its course, but as soon as the child is expelled, an old woman, who makes this a specialty, is called to deliver the afterbirth, which she does by pressing and working the abdomen constantly until the placenta and the clots are removed. This person has nothing whatsoever to do with the delivery of the child. The same position is occupied by the women of the Skokomish agency, and here, also, the very best practice is followed, the placenta being allowed to come away without any manual interference except expression over the region of the womb and a slight traction on the cord.

The Brulé Sioux and Warm Spring Indians retain the standing posture, in which the child is delivered; the midwife, standing behind the patient, aids the naturally rapid expulsion of the placenta by pressure on the fundus with her hands, varied by a kind of churning manipulation.

Intra-Abdominal Pressure.—The use of the diaphragm as a powerful aid to all efforts to expel the contents of the abdominal cavity is well-known to our midwives, and we know how frequently they direct their patients either to hold their breath or to scream, as the exigencies of the case may demand; but, fortunately, they do not resort to measures quite so violent as our Spanish neighbors in Mexico, who assist the expulsion of the placenta by vomiting the unlucky patient. Some of our Indian tribes also lay stress upon the intra-abdominal pressure, and the assistance of the diaphragm and abdominal muscles, but only in case of retention or delayed expulsion, and hence we shall speak of this method farther on. The Somali of Central Africa, however, habitually give the patient warm mutton suet to drink after the expulsion of the child; this has a laxative effect, and, with the contents of the bowels, those of the uterus are expelled.

Traction on the Cord.—Traction upon the umbilical cord appears so natural, and is certainly so tempting a means of removing the placenta, that it is much esteemed by a class of meddlesome midwives which abounds in all civilized countries to the detriment of parturient women, but the untutored savage, guided in his practice by instinct and observation, is too shrewd to seek the removal of the retained placenta by such dangerous means.

Although it is customary, among some of our Indian tribes, to make a certain traction upon the cord, I am uniformly told that this is always done with extreme caution, and but very few make use of it to drag down the afterbirth—a manipulation fraught with so much danger, and unfortunately so common among more intelligent people.

The Crows and Creeks are usually delivered prone upon the stomach, and the placenta is rapidly expelled, either in the same posture or while standing; in rare cases it is delayed, and then it is allowed to remain until it decomposes, and, remarkable to say, pyemia rarely follows, probably on account of the naturally strong constitution of the race. Among them, gentle traction upon the funis is the only assistance accorded to nature, and if there be much resistance, it is at once stopped, and the placenta allowed to remain, in preference to attempting its delivery by stronger traction.

The Rus, Gros-Ventres, and Mandans are confined in a kneeling posture, in which the placenta also is expelled, but if it does not come away rapidly, with some little rubbing of the belly with the hands greased with turtle fat, the accoucheur pulls gently and steadily on the cord, evidently relying somewhat upon this traction for the removal of the placenta.

The worst practice is that of the Cheyennes and Arrapahoes, who retain the dorsal decubitus in which the child is expelled, but never wait for the expulsion of the placenta by the proper contraction of the womb, removing it at once by traction upon the cord, which will often break under the rough usage to which it is subjected, and the unfortunate woman will then often suffer from severe hemorrhage, due to the retention of the placenta, as no effort is made to remove the organ after the rupture of the cord. Massage is resorted to, when the placenta does not readily respond to traction, and the accoucheur has judgment enough not to pull too hard. The Chippewas drag down the placenta by the cord, if it is not readily expelled with the assistance of external manipulation.

Delivery of the placenta with the patient in a different position from the one occupied during the expulsion of the child.

A change of position is not infrequently made immediately after the birth of the child, with a view to hastening the expulsion of the after-birth. As this period of labor is a short one, an uncomfortable position, if otherwise advantageous, may be readily assumed; and, moreover, the muscular effort, which the patient involuntarily undergoes in making this change, will assist the contraction of the womb. The change most frequently made is to a standing posture. Thus the squaws of the Cattaranguts rise to their feet from the kneeling posture, which they occupied during the birth of the child, with the idea of facilitating the expulsion of the afterbirth. If this does not take place within a short time, the attendant makes traction on the cord, at the same time making downward pressure over the abdomen, while the parturient maintains the standing posture.

Dr. D. D. Taylor, surgeon U. S. Army, in detailing the labor of a Sioux squaw whom he delivered, seated cross-legged on the floor, says: "The moment I cut the cord she jumped to her feet, and, standing erect, seized the squaw-belt, a leather belt about four inches wide, which she buckled over her hips and abdomen, drawing it as tightly as her strength would permit. During this time the hemorrhage was very abundant; within a minute, however, the placenta dropped on the floor, the bleeding ceased, the womb becoming firmly contracted, and she sat down on a stool looking as if nothing unusual had happened. The belt was removed the next morning, and she remained up and went about the house as usual. I saw no other attempt at expression used but the application of the belt, and this, I believe, is universal among the Sioux for the purpose of expelling the placenta and preventing subsequent hemorrhage." The Crows and Creeks, as I have already mentioned, who are often delivered prone upon the face, chest, and abdomen, rise up as soon as the child is expelled, and rest upon a stick of some sort, with the feet spread wide apart. This is to allow the blood to flow very freely, and, as they think, the placenta to be more readily and easily delivered.

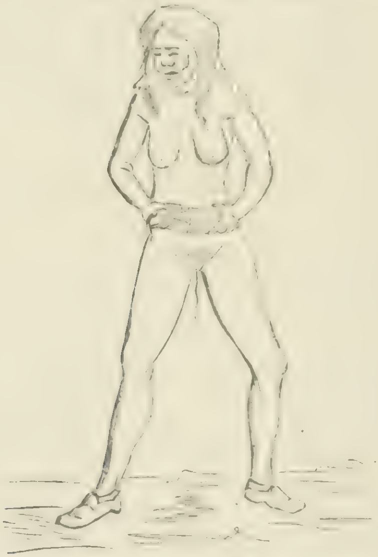

FIG. 2.—Use of the squaw-belt. Sioux Indians.

In the Unitah Valley agency, the parturient drinks freely of hot water, both during the second and third stages of labor, arises to her feet as soon as the child is expelled in the usual obstetric position, kneeling, places a folded cloth to her abdomen, and, leaning forward over a stout stick, rests her body upon it, thus exerting considerable pressure over the hypogastric region—a method well calculated to favor the expulsion of the placenta, which is thus delivered without any further assistance. Upon the Sandwich Islands they change the posture of the mother to the semi-erect from the sitting, in order to effect the speedy removal of the afterbirth, which they regard as very desirable and necessary. The patient assumes a semi-erect posture, more properly squatting, with the pelvis thrown backward and the knees partly flexed, the midwife at the same time supporting the child, as the cord is not cut until after the delivery of the placenta. At this juncture the patient thrusts her finger in the fauces to produce nausea or vomiting, which causes a spasmodic expulsive action of the uterus, resulting, not infrequently, in the immediate birth of the placenta and its membranes. If such is not the result, there is more or less excitement; the woman retains her erect position, is "loomied" over the womb and abdomen, a sort of kneading, squeezing operation, generally performed with the hands

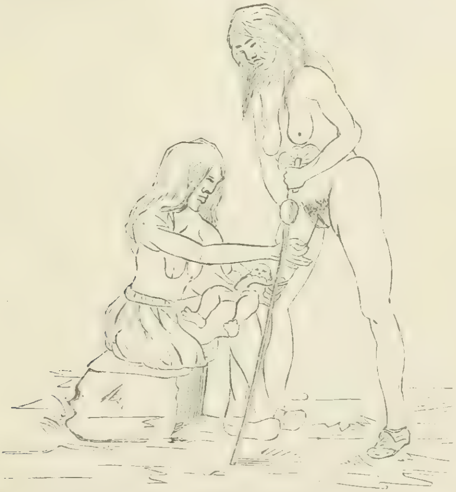

FIG. 3.—Placental expression as practised by the Indians of the Unitah Valley Agency.

by the attendant, until the flooding has moderated or almost ceased, when she is conducted to a stream or large containment of water, where she is washed, secundem artem, re-dressed, and returned to the house and its promiscuous inhabitants; children and all being allowed to witness the performance.

In Syria, some twenty or thirty minutes' time is given for the expulsion of the placenta, in the usual obstetric posture, in the chair; but if this does not take place, the cord is cut, and the patient put to bed for further manipulation. The Pawnees change the position of the patient in various ways, from the squatting posture, and pull upon the cord, evidently seeking to obtain expulsion simply by the muscular contraction resulting from the motion of the patient.

MANAGEMENT OF THE PLACENTA IN CASE OF RETARDED EXPULSION.

We have already seen that, as a rule, the delivery of the placenta speedily follows the expulsion of the child, nature being merely assisted by the continuance of the external pressure, which serves to assist and facilitate the contraction of the uterine globe. If the placenta does not readily come, they are at a loss what to do, and the patient is often left to herself. Dr. C. M. Harrison writes from the Mexican frontier that the Indians, and lower order of Mexicans, seem to have no other method of extracting the placenta than by traction on the cord, and that he has seen women dead and dying merely from the want of having the placenta extracted. The Dakotas use most violent means, and if the delivery of the placenta is at all retarded, it is forcibly extracted, and often with fatal consequences. Other of the Indian tribes have more reasonable ways, and it is these which we will now consider. The description given me of the attempts at delivery of a retained placenta by a Mexican midwife, by Surgeon H. R. Tilton, U. S. Army, embodies many of the more violent methods resorted to. When called to the patient, he found that she had been given a quantity of raw beans, between a pint and a quart, as one remedy; these were probably intended to swell, and thus drive out the placenta. This failing, she had been vigorously choked, as another means of expelling the afterbirth. Finally, she was placed in the lap of her husband, in the obstetric position of that country, whilst he squeezed the abdomen powerfully with his encircling arms. This last expedient, by the way, is a favorite method among the Mexicans for facilitating labor, the contracting uterus being steadily followed down by the arms of the husband. After all these means had failed, the after-birth was readily removed by the surgeon, upon the introduction of the hand, but the recovery of the woman remained doubtful, after the violence to which she had been subjected.

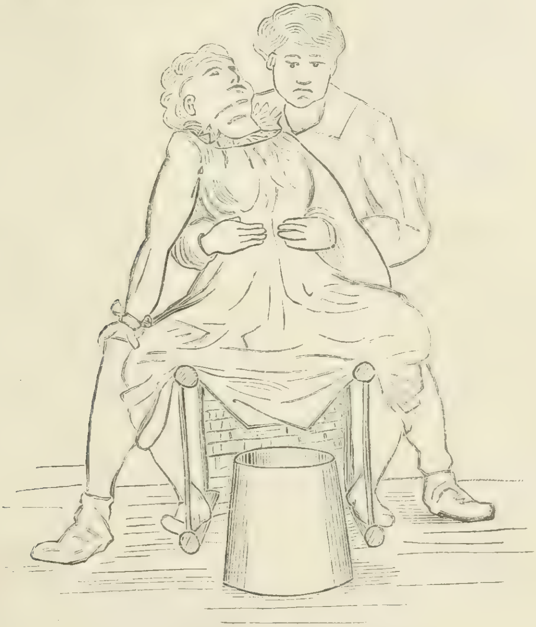

FIG. 4.—Placental expression, Mexico.

In the Laguna Pueblo, a tea made of the corn blossoms, or the tops of the corn, is given the patient in case the delivery of the placenta is retarded; hot cloths and hot stones are applied, and the uterus is manipulated externally with a twisting motion, which seems, indeed, a reasonable treatment. So also among the Cheyennes massage is resorted to in protracted cases, where the placenta is not readily removed by traction upon the cord; and among the Sandwich Islanders the womb is "loomied" over, whilst the patient retains an erect position, the abdomen being subjected to a sort of kneading, squeezing operation, by the hands of the attendants, until the unwilling placenta is expelled. The same thing precisely is done by the Indians of the Pacific coast, who are usually confined in a semi-recumbent position, but in a retarded third stage of labor assume an erect posture, and whilst the attendants are firmly pressing the uterine globe, the accoucheur makes a certain traction upon the cord.

A rather violent and disagreeable method of dealing with the retained placenta is that of the lower order of Spanish women of Mexico, who retain the kneeling position, in which the child was delivered, and drink a cupful of soapsuds, which soon produces vomiting and the immediate expulsion of the afterbirth. The Gros-Ventre Indians rely upon the same plan, but approach it a little more gradually; they give an irritant powder (what it is, Dr. C. B. Greenleaf, surgeon U. S. Army, who kindly gave me the information, could not tell), first as a snuff to excite sneezing, and thus expel the placenta, and if this fails, it is administered by the mouth to produce vomiting, and these more forcible muscular contractions seldom fail to answer the purpose. The Rus and Mandans pull gently upon the cord, and rub the abdomen, giving, in addition, some remedies which they also use when the expulsion of the child is delayed. They have most faith in the berry of the ground cedar, castorium, or a button of the rattlesnake's tail, giving castorium in doses large enough to produce vomiting.

The method of the Comanches is to grasp the womb, knead and compress it, make slight traction upon the cord, and efforts to reach the placenta with the hand, in which the patient as well as the assistant takes part. The Papagos pursue a course which is certainly peculiar to them, of producing a more steady and, perhaps, not too violent traction upon the cord, by so attaching it that the amount of force to be used is left to the judgment and the sensations of the patient; it seems as if her sense of pain were to serve as a safety valve for the amount of force to be expended, and thus the proper limit determined and dangerous consequences avoided. In the interesting description given me by Surgeon Charles Smart, U. S. Army, who was called in a case in which the placenta had been retained for three or four days, he found the attendants in great alarm for the safety of the mother.

The patient lay on her side, with her knees drawn up, and every now and again, while he was learning the particulars of the case, she was directed to stretch herself out. The reason of this he found by introducing his hand for the purpose of making an examination; a buckskin thong, about the size of a whipcord, was made fast to the cut end of the funis, whilst the other extremity was discovered hitched around the great toe, and when she stretched the limb in bed traction was made on the placenta. The doctor found no adhesions and readily removed the afterbirth upon the introduction of the hand into the womb.

Since writing the above I learn that the Japanese, also, either carefully hold the projecting end of the cord or tie it to the patient's leg, in case the placenta should resist the simpler efforts directed toward its expulsion.

Among the Flat-heads, Pend-oreilles, and Kootewais, in case the usually speedy and natural expulsion of the placenta does not take place, the patient leaves the obstetric position, upon a low stool, and is made to stand and walk about, a proceeding which, though probably injurious to the delicate women of our civilization, is harmless and almost always successful among these Indians.

The Indians of the Misqually agency commonly use a steam bath in the very rare cases of retention. A hole is made in the ground and filled with hot rocks which are covered with leaves of the fir-tree; water is then poured upon them, and the woman made to sit over this vapor bath for a few minutes. This simple means seldom fails, and if it should, other help is called —maybe a woman, maybe a physician, if one is convenient.

MANAGEMENT OF THE UMBILICAL CORD.

The Indian midwives, as well as learned obstetricians, differ in their views with regard to the proper time for cutting the funis, but, as a rule, we find that the cord is not severed until labor is completed and the secundines are expelled; this practice we find among the Sandwich Islanders and among most of our Indians; the child remaining on the ground in front of the mother until the placenta is delivered; among the Kiowas, Comanches, and Wichitas, it is customary, after the placenta is delivered, that the assistant should take the cord between her fingers and squeeze such blood as may remain in it back toward the placenta, and not until then the cord is cut and tied. So also the Blackfeet, Uncpapas, Lower and Upper Yankton-ans of the Sioux nation do not sever the funis until the placenta has been expelled, while the Flatheads and Kootewais, Crows and Creeks, cut the cord at once, and I may here add that, as soon as the cord is tied and cut and the child is removed, the parturient cautiously takes hold of the placental end of the funis, believing that, if she should let it go, it would return into the uterus. The natives of Syria wait from twenty to thirty minutes before cutting the cord, but if the afterbirth is not expelled by that time, it is severed and the patient put to bed.

Some difference also seems to exist, and probably with reason, for the methods of each, as to the distance from the child at which the funis should be tied. The Wakamba, in Africa, use threads of the bast of the adansonia or monkey-bread tree, and tie the funis tightly two or three inches from the navel, the Mexicans some three inches. The Japanese tie the funis in two places, about one inch apart, close to the child's body; the Comanches, on the contrary, using only one ligature, tie the cord about a foot from the body of the child, and in Africa we find one of the tribes, the Waswahili, where the cord is also left very long and slowly dries; the navel in later years being often found the size of a fist. The Loango, of Middle Africa, on the contrary cut the cord short and dry it rapidly; it is severed at double the length of the first joint of the thumb, or is measured off to the knee, then the child is taken to the fire and the remnant of the funis is steadily pressed by the warmed fingers of the numerous attendants so as to hasten its drying, which is completed in twenty-four hours; then the withered mass is forced off with the thumb nail and burnt (Indiscretes aus Loango; Dr. Peschuel-Loesche, *Ztschrft. f. Ethnolog.*, 1878, X., p. 29).

The Syrians tie both sides; the Catarangut Indians ligate only one end, the child's end; so also the Blackfeet, who, however, take the precaution to pinch the protruding placental end of the funis with the fingers, so as to prevent oozing.

Certain superstitions also exist in regard to the method of cutting the funis, a dull instrument being frequently used, probably on the principle of the modern saw-knife, as bruising and crushing rather than cutting, and thus preventing hemorrhage. Some of the African tribes, the Wakambi for instance, make use of their ordinary knives; the Loango, however, would deem it a misfortune to the new-born babe to use anything but the edge of the stem of a palm leaf; the Papagos of Brazil cut the cord with a sharp fragment of a vessel or a shell. The Hoopas, Klamaths, and other of the Indian tribes chew off the cord. The Klatsops, as we have seen, pinch one end with their fingers. These various procedures, now traditional superstitions, have, probably, originated in some thinking mind and good reasons have existed for their use.

PECULIAR SUPERSTITIONS AND CUSTOMS.

The Sandwich Islanders, like many of our Indians, accustomed to the speedy expulsion of the afterbirth, are in great alarm if this does not occur, and think that a rapid delivery is all important; in case their simple means do not succeed, they do not seem to worry much about the patient; the Menominees and others leaving her often in the same position for days, whilst the Crows and Creeks and allied tribes, and the Mexians also, cease to bother about her, leaving the placenta until it sloughs away, or the patient succumbs to the consequent pyemia. The African negroes, either on account of ignorance or superstition, rarely make any attempt at artificial removal of the retained afterbirth. Among all these savage people, a certain belief seems to exist that, if nature, aided by their simple and rational means of external expression, does not speedily expel the placenta, it must not be interfered with and they turn away from the unfortunate sufferer; should the cord tear in their efforts at traction, which fortunately are, as a rule, gentle, they give up the patient; hence we see with what care the Kootewai squaw seizes the placental end of the cord as soon as it is cut in order that it may not escape back into the womb; it is possible that some such superstition, rather than obstetric knowledge, should cause the Indian midwife to make but gentle traction on the cord, and induce her to rely mainly upon external pressure, either by belt or hand, or even such as may be caused by the efforts at vomiting; possibly it may have been the teaching of some shrewd law-giver, but there is certainly some fear which prevents the women of savage tribes from making that dangerous traction upon the navel string which is so common among their white sisters; it is truly unfortunate that no such superstitious fear governs the civilized midwife.

A peculiar trait is also developed among many of these people which we are familiar with in the superstitions of some of our typical old women, who are often grieved that they are not permitted to follow their inclinations and do as their feelings and their belief dictate. The Comanches and other nations have a way of secretly and mysteriously disposing of the afterbirth, so also the Loango and many of their African sisters; it is usually buried, as is customary among the Japanese; but I hardly believe it is quite as effective as that of some of the natives of Brazil, who, if it can be done secretly, eat the organ which has been recently expelled in a solitary labor. If observed, they burn or bury it.

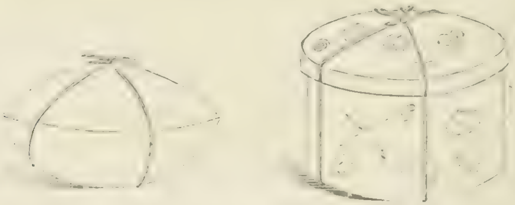

FIG. 5.—Vessels in which the placenta is buried. Japan.

A peculiar superstition is that of the Loango, who hasten the drying of the navel, force it off within twenty-four hours, and burn it, believing that the child would fall into evil ways if the remnant of the funis should become food for the rats, and as long as the navel is still on the child, no male being, not even the father, is admitted to the presence of the new-born.

CONCLUSIONS.

The same doubts as to the proper management of the third stage of labor which have annoyed our obstetricians seem to have arisen in the savage mind. We find various customs existing among the different tribes and people, and, right or wrong, they cling to them with the pertinacity of the modern writer, well satisfied with the correctness of his own view. We find the same methods and the same errors, an occasional yielding to the same temptations which beset the midwife of our advanced civilization, but in the main a correct practice predominates, and the untutored savage, guided by instinct and observation, pursues the very course which is now considered the most advantageous and scientific among our leading obstetricians.

I cannot refrain from quoting some points from the excellent remarks of Playfair upon the management of the third stage of labor in order to show how well his teachings are borne out by the instinctive practice of the savage. He says: "There is unquestionably no period of labor where skilled management is more important, and none in which mistakes are more frequently made. . . . The general practice as to the management of this stage is opposed to the natural mechanism of placental expulsion, and is far from being well adapted to secure the important advantages which we ought to have in view." The objections he makes to the ordinary practice are: "That it inculcates the common error of relying on the binder as a means of promoting uterine contraction, advising its application before the expulsion of the placenta; that it teaches that traction on the cord should be used as a means of withdrawing the placenta, whereas the uterus itself should be made to expel the afterbirth. This may seem an exaggerated statement to those who have accustomed themselves to resort to the method of pulling on the placenta, but I feel confident that all who have learned the method of expression of the placenta would certify to its accuracy. The cardinal point to bear in mind is that the placenta should be expelled from the uterus by a *vis a tergo*, not drawn out by a *vis a fronte*. . . . The distinct enunciation of the doctrine that the placenta should be pressed and not drawn out of the uterus we owe to Credé and other German writers, but it is only of late years that this practice has become at all common. Those who have not seen placental expression produced, find it difficult to understand that, in the great majority of cases, the uterus may be made to expel the placenta out of the vagina, but such is unquestionably the fact." Is this not the practice most commonly followed among our Indian tribes? And is not, in consequence of this method of treatment, the placenta, as a rule, rapidly expelled, and its retention a matter of very rare occurrence?

As a rule the patient retains the position in which the child is expelled, usually one most favorable for the use of the abdominal muscles, kneeling or squatting. Steady pressure is kept up upon the contracting uterine globe, and if its contractions cease, they are stimulated by massage, by a kneading, churning of the tumor, and aided by slight traction on the cord, the placenta is expelled. Moreover, we have seen that the Makah Indians, of the Neah Bay agency, are the only people who make a specialty of the third stage of labor; they require no assistance in the delivery of the child, but after it has been expelled an experienced woman comes to assist in the delivery of the placenta by expert manipulations of the abdomen with her hands. The North American Indians and the African negroes, undoubtedly other tribes also, have for ages followed a practice so perfect that only within the last few years the most alert of our obstetricians are in a position to compare with them; within the last decade, of this advanced age, constant scientific research has finally placed us upon a level with our less favored brethren.

ANTE-NATAL DIAGNOSIS AND TREATMENT OF SHORT OR COILED FUNIS.

BY

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MOST practitioners regard it as a matter of little or no concern whether the cord is coiled round the fetus or not, inasmuch as such cases usually terminate favorably to both mother and child without any remarkable treatment, other than that of liberating the funis after the birth of the head (the coil being round the neck), and diagnosis *before* the head is born is generally not thought of or considered superfluous.

It is quite true that, so far as fetal or maternal life and death are concerned, the matter is not of very great importance. Still it is not altogether unworthy of consideration even in this particular, for the statistics of Weidemann show that "of 725 children born with coiled funis, 45 were dead and 72 still-born. Among the 45 dead-born, in the 725 examples of coiling, in 18 only could the death be referred to this latter circumstance." "From results derived from the midwifery institutions of Dresden, Göttingen, Würzburg, Berlin, and Marburg it appears that of 13,720 new-born infants 902 were born dead, while in 1,217 instances of coiling of the funis 31 children were born dead, whose death could be ascribed to that circumstance, giving a proportion of 1.39 to the coilings and 1.19 to the number born dead." (See Bedford's Obstetrics, Lecture XVII., pp. 251–252.) While this infant mortality is small, still it is something, and deserves consideration.

It is not, however, so much in the regard of a life-destroying complication that I propose to study short or coiled funis, but rather as one by which labor may be rendered painful and prolonged ; for it is our duty, not only to see that parturition may *terminate* favorably to life, but also to secure the shortest, easiest, and safest road by which such a termination may be reached. Indeed, if by any means, when we are detained waiting for and watching a parturient woman, we could safely and easily hasten the delivery a few hours, or even a single hour, all of us would be glad enough to do so for our own sakes, to say nothing of abridging the parturient agony of the female, which I sometimes think the modern obstetrician, clad in his scientific armor, is too much inclined to disregard.

The influence of coiled or short cord in retarding labor has been variously valued by obstetricians of different periods. Our latest obstetrical authorities, Playfair and Leishman, pay little attention to it. Playfair, in fact, scarcely mentions it at all, further than to say that, when coiled round the neck, "it may in exceptional instances prove injurious during labor." (2d Am. Edition, p. 221.) Leishman treats the subject somewhat more fully. Referring to *actual* shortness of the cord, where it does not exceed two or three inches, he affirms that the effect of mechanically hindering delivery is here not often likely to take place. I suppose he means to say the complication does not often render delivery mechanically impossible; for, he adds, cases occasionally occur which, "if the placenta is normally situated, must imply delay in delivery, rupture of the cord, premature separation of the placenta, or inversion of the uterus."

Referring to those far more frequent cases in which the cord is really long, but coiled so as to be *practically* short, he says: "The exact stage of delivery at which arrestment from this cause is most likely to occur depends upon the length, or the length exclusive of coils, of the cord; but, as a rule, it would appear it is seldom that much inconvenience is complained of until the stage of expulsion approaches, when, for the first time, the cord is put upon the stretch, and pain is, probably, to some extent complained of in the region of the uterus."

Further on he remarks: "It has frequently been observed, when the cord was coiled round the neck of the child, that progress was for the first time arrested during or after the birth of the head."

He gives no ante-natal diagnostic symptoms other than "pain in the region of the uterus" and "a depression of the fundus" occurring "at every pain, the rounded form being restored in the interval." This latter presupposes, of course, normal position of the placenta, and Dr. Leishman rather regards it as one of those instances "where what we may call a theoretical symptom is set down as a real or practical one." (Midwifery, 2d Am. Ed., pp. 592–593.)

Velpeau, under the head of "Difficult Labor," devotes considerable space to "deficiency in the length of the cord." (See "Meigs' Velpeau's Mid.," 4th Am. Ed., 1852, pp. 420–422.) He tells us that until the time of Baudelocque it was supposed that the delivery of the fetus might be prevented, or at least considerably retarded, by a very short cord, but does not agree with Baudelocque himself in the assertion "that a cord's being too short cannot in any case interfere injuriously with delivery." Velpeau quotes the statement of De la Motte, that when the cord is less than six or eight inches, and the placenta placed at the fundus, "the head, which is forced towards the inferior strait during the contractions, is found to rise upwards again during the intervals between the pains; the occiput is seen to engage in the vulva, to be on the point of clearing the strait at every effort made by the woman, and then, as soon as the pain is off, it re-enters the passage, and *this continues for several hours.*" Velpeau admits the circumstance as described by De la Motte, but denies his explanation of it, affirming that retraction of the head is due to elasticity of the perineum (especially in young, robust women), and of the head itself, but not to resistance of the cord. Further on, however, he reaches the following conclusion: "In fine, in some cases, the shortness of the cord may present a mechanical obstacle to the expulsion of the fetus. The woman experiences very peculiar pains about the insertion of the placenta—pains which Guillemot compares with reason to those induced by traction on the cord for its too speedy delivery. Pen, Burton, and Smellie relate cases which leave no doubt on the subject" (p. 420).

In considering *accidental* shortening by coils, Velpeau gives some figures as to its frequency, telling us that Richter, of Moscow, collected 27 examples out of 620 deliveries (1 in 23); Siebold had 21 examples out of 137 labors (1 in 6½); and Guillemot's tables give 370 examples out of 1,725 labors (1 in 4½) (p. 421). Under the head of prognosis, Velpeau fully recognizes danger to the child from strangulation, etc., and admits that coiling of the funis retards labor by opposing descent of the head. "When the cord is considerably shortened by the twist round the neck," he says, "the labor at first presents no peculiarity, and it is only towards the close of the first stage, or that of dilatation of the os uteri, that it can be suspected. Many observations of Guillemot prove that from this moment the descent of the ovum seems to be suspended, although the woman continues to suffer; and the head rises entirely above the superior strait so soon as the contractions go off, and that the pain, which is peculiar and distinct from the ordinary pains of labor, induce the patient to desist from rather than to assist by the bearing-down effort. After the rupture of the membranes, the head progresses without any difficulty, and without any peculiar symptoms, until it reaches the floor of the pelvis; but it does not clear the perineal strait without presenting the same phenomena as at the superior strait. Here the finger introduced under the pubic arch and along the anterior walls of the excavation will even, in some cases, reach the neck and establish the fact that the cord does encircle it" (p. 422).

Velpeau's treatment is, rupture of the membranes for the difficulty at the superior strait and speedy delivery by forceps or by the hand, with cutting of the cord if absolutely required, for difficulty at the outlet.

Ramsbotham comes to the conclusion that, "so far as the head of the child is concerned, the shortness of the funis umbilicalis can produce no such impediment to its exit as to cause a *lingering* labor;" but he has previously defined "lingering labor" to be one that lasts longer than twenty-four hours, from beginning to end—a duration much over the average of normal labors. The dangers of rupture of the funis, hemorrhage, uterine inversion, premature placental separation, and strangulation of the child are only recognized by Ramsbotham after the head is born. His treatment does not differ from other practitioners. He makes no reference to ante-natal diagnosis. Real and acquired shortness (by coiling) of the cord he regards about alike, noting only the difference as to the liability to strangulation and arrest of umbilical circulation in the latter. (System of Obstet., Keating, Am. Ed., 1861, pp. 152, 153–256.)

Thus it will be seen, as I have said, authorities differ in their opinions as to the degree to which labor may be interfered with by a short or coiled funis. Most of them are content that the abnormity does not often materially endanger life, or that it does not so far obstruct parturition as to produce a so-called "tedious" or "lingering" labor, with its attending serious symptoms. In fact, as long as the birth *finally* comes through all right in the large majority of cases, most of them think it is not worth while to bother or interfere. Let nature take its course. "All's well that ends well." From this platform I beg to demur. It is the least painful and shortest way of reaching the end that we are by duty bound to consider. We should make the labor as easy and short as is possible, compatible with safety and good recovery.

My own conviction is—and it is not one that I have attained by theoretical reasoning, but by actual observation at the bedside—that the duration of labor is painfully prolonged for one or more hours by coiling of the cord, a good deal more frequently than is generally admitted. No statistics that I know of have been collected with a view to discover the relative average duration of labor in cases with and without this complication (other things being equal). It is a matter, however, that certainly deserves consideration.

If even a brief delay is occasioned it must, when we recall the great frequency of its recurrence, entail an immense amount of suffering.

At any rate, I think the matter is of sufficient interest to require, or at least justify, an attempt to diagnose it before birth, which I believe is seldom done in general practice, at least not before the birth of the head.

The symptoms, gleaned from the books, are as follows:

1st. A peculiar pain, felt during uterine contraction, in that part of the uterus to which the placenta is supposed to be attached. Multiparous women tell us it is a pain different from the labor pains, and which, perhaps, had not attended previous labors. Such a complaint on the part of the patient should arouse suspicion; it should not pass unheeded.

2d. Partial arrest of the pains, especially of the bearing-down efforts.

3d. Retardation of descent in the presenting part without obvious cause, and its retraction between the pains to a more decided and persistent degree than can be accounted for by resistance of the soft parts.

4th. Passing a finger high up so as to touch the lowest part of the coil. The whole or greater part of the hand may enter the uterus for this purpose, if the amount of obstruction appears sufficient to justify it.

5th. A certain amount of blood discharged before the birth of the child, when not accounted for by lacerations of the cervix uteri or other soft parts.

6th. Depression of the fundus during the pains at the supposed placental site (doubtful).

7th. I would now add another symptom (the presentation of which is one of the main purposes of this paper), which I conceive to be of considerable importance—one that I cannot explain theoretically, and which I have only learned by observation—viz., *a persistent desire on the part of the patient to sit up*. It must be ascertained, of course, that the wish to rise is not due to a desire to evacuate the bladder or bowels.

My attention was first directed to this symptom by a woman who was continually asking permission to sit up during the second stage of labor. The desire did not arise from any wish to empty the bowel or bladder, but was simply an instinctive desire to assume a sitting posture. The bag of waters had broken some time previously; the labor had been making no progress, and, according to conventional rule, sitting up was forbidden. Still the poor woman insisted, and still it was prohibited. Having left the room for a minute, the patient took advantage of my absence, assumed a sitting posture, and, with one pain in that position, the child was born, and placenta immediately followed. The cord was very long, but it was coiled four times round the neck, and was thus artificially or practically short.

The desire to assume a sitting posture in conjunction with coiled cord I have observed in two cases quite recently. In one of them the funis went round both body and neck; in the other, round the neck alone.

Now I have been led to ask whether, in these cases of practically short cord, the labor may not be safely expedited by allowing the female to assume a sitting posture, or a kneeling or squatting one, as is assumed by many parturient savages. Theoretically, it is not difficult to conceive how such a posture might be of service, for its effect would be to force the whole womb, with its contents, deeper down into the pelvis, and at the same time afford the female a far more powerful control over the abdominal muscles, enabling her to bear down with more force than when in the recumbent posture.

The desire to sit up has occurred in connection with short cord sufficiently frequent to deserve consideration, and I shall not hesitate, in future, to adopt the practice of allowing the woman to sit, provided no contra-indication exists to render such a proceeding unsafe.

In lately reading this paper before the Medical Society of the District of Columbia, and soliciting statements in regard to it from other practitioners, I was pleased to hear five cases related, in which the desire to sit had been associated with coiled funis, and in one, the labor, from having been previously delayed, was rapidly completed in the sitting posture, the placenta, with some blood, immediately following, as in the case above described.

THE TREATMENT OF EXTRAUTERINE PREGNANCY.

BY

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PROBABLY less than a dozen years ago, a discussion as to the treatment of extrauterine pregnancy would have been regarded as possessing little more than a theoretic interest. Then the anomaly in question seemed so remote a contingency that few practitioners seriously considered the possibility of its occurring in their practice. The last few years have, however, witnessed a great change in the attitude of the profession toward this neglected subject. Deschamps, in 1880, published a collection made up for the most part of recent cases, one hundred and twelve in number, of which twenty-four were reported by American journals, and of these, nine were contributed by members of the Obstetrical Society of New York, between the years 1876 and 1880. But this list makes no pretense at completeness. Many reported cases are omitted, and a still larger number are buried in the note-books of unambitious physicians. The credit of wakening the attention of medical men to the importance of early recognizing the different forms of extrauterine pregnancy belongs, in this country, I believe, first, to Parry, and, second, to Dr. Gaillard Thomas, whose brilliant surgical successes in this field have been an incentive to activity on the part of gynecologists at home and abroad. But with the rapid multiplication of cases, which increased facility in diagnosis places at our disposal, the settlement of the most desirable modes of treatment assumes a high degree of importance. The following paper does not propose to discuss new and untried methods. It is not a part of my design to base conclusions upon mere brute statistics. By a careful study of such cases only as I could find completely reported, I have endeavored to obtain instruction as to my own conduct in the future. The excuse for bringing my result before the Society is that, in some respects, they have not been at all what I had anticipated, or what would be regarded as natural à priori deductions. In estimating the merits of various plans of treatment, it is desirable to recall briefly the natural termination of the anomaly.

TERMINATIONS.—In tubal and interstitial pregnancies, the usual terminations are rupture of the sac, hemorrhage, peritonitis, and death. It is well to bear in mind, however, that this is not the history of all; a pretty large percentage ending in recovery. Thus a dead fetus may be retained for years without furnishing the impulse to a fatal issue. When the fetus dies previous to rupture, the ovum may degenerate into a mole; or the fetus may either undergo mummification, or be converted into a lithopedion.

In abdominal pregnancies, whether primary or secondary, the ovum or fetus usually excites a local peritonitis, attended with pain and fever, and followed by the production of pseudomembranes, which exercise a conservative influence by shutting off the ovum from the peritoneal cavity. Indeed, in the exceptional instances where these inflammatory conditions do not develop, the movements of the fetus within its own membranes may give rise to such intense suffering as to cause the woman to die from exhaustion (Schroeder).

In ovarian and abdominal pregnancies, the child may die prematurely, or gestation may advance to full term. In the latter instance, labor pains set in, the decidua is expelled, and the child dies during the expulsive efforts. In the majority of cases, the dead fetus excites a suppurative inflammation in the sac by which it is inclosed, and the patient is liable to die either from general peritonitis or from profuse suppuration. In favorable cases, where the peritonitis remains local and the suppuration is tolerated, fistulous communications may form with one of the hollow viscera or the abdominal walls, through which the contents of the sac can be eliminated. Most frequently the opening takes place into the large intestine; quite often, through the abdominal walls; more rarely, into the vagina and bladder. In any case, the process of elimination is slow, often lasting months, and even years. When the bones and soft tissues have all been discharged, complete recovery may take place. In the larger proportion of cases, however, if nature is not assisted, the patient perishes from exhaustion and blood-poisoning before the elimination is ended (Schroeder).

Sometimes the foregoing inflammatory changes do not occur as the result of the death of the fetus, in which case the fluid contents of the sac is reabsorbed, the walls collapse and come in contact with the fetal cadaver. The skin of the latter, and, at a later period, the deep-seated soft tissues undergo fatty degeneration, and form a greasy substance, consisting of fat, lime salts, cholesterin crystals, and blood pigment. At a later period, the fluid portions absorb, so that nothing remains but the bones, lime lamellæ, and incrustations upon the walls of the sac, or the fetus may shrink up like a mummy, preserving its shape and organs to the minutest detail (Spiegelberg). A fetus thus altered is termed a lithopedion. It can remain imbedded in connective tissue for years without injury to the mother. The lithopedion of Leinzell was removed, in 1720, from a woman ninety-four years of age, who had carried it for forty-six years. The presence of the lithopedion does not prevent pregnancy from taking place.[1] In some cases, it may, after years, excite suppuration—a result which is fostered, according to Spiegelberg, by pregnancy and labor. Recovery may follow the artificial extraction of the foreign body, or death may result from inflammation and the discharge of pus.

TREATMENT.—The treatment of extrauterine fetation varies in accordance with the stage of pregnancy and the condition of the fetus. For the sake of convenience, we distinguish, *first*, cases of early gestation; *second*, cases of advanced gestation (fetus living); *third*, cases of gestation prolonged after the death of the fetus.

1st. CASES OF EARLY GESTATION.—The indication for treatment in the early months is plainly to adopt measures to destroy the life of the fetus, and thus, by arresting the growth of the ovum, avert the danger of rupture and hemorrhage. Indeed, in this way we simply follow the plan marked out for us by nature, spontaneous recovery commonly following the accidental death of the embryo.

The methods which have heretofore been employed to destroy the ovum are—puncture of the sac, injections of morphia solutions, elytrotomy, and the several electric currents.

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[1] Schroeder, l.c., 6te Aufl., p. 421.

Puncture of the Sac.—Puncture of the sac is usually easily effected by the introduction of an exploratory trocar through either the vaginal or rectal wall. The operation is to be recommended on the score of simplicity, but has not been attended with very brilliant results. Recoveries after puncture have been recorded by Greenhalgh, Tanner, Stoltz, Koeberlé, and E. Martin (two cases).[1] Fatal issues from septicemia and peritonitis followed puncture in the hands of Routh, J. Y. Simpson, Al. Simpson, Martin, Braxton Hicks, Thomas (two cases), Conrad, Netzel, Hutchinson, John Scott, Gallard, and Depaul. Fraenkel[2] withdrew nearly three-fifths of an ounce of amniotic fluid from the sac without interrupting the course of pregnancy.

Injections of Solutions into the Sac Designed to Destroy the Fetus.—This method was first suggested by Joulin.[3] He proposed injections of sulphate of atropia (one-fifth grain, dissolved in a few drops of water) into the sac by means of a long hypodermic syringe. His suggestion subsequently was successfully carried into effect in two cases by Friedreich,[4] of Heidelberg. The needle of the syringe should be introduced into the sac through the abdominal or vaginal walls; a few drops of fluid should then be withdrawn, and its place sudplied by the solution containing the poison selected. Friedreich employed by preference a fifth of a grain of morphia. The operation should be repeated every second day, until the diminished size of the ovum affords evidence that the result sought for has been accomplished. The operation seems to produce but slight inflammatory disturbance, and the maternal system has been found not to feel the influence of the narcotic.

Elytrotomy.—Prof. Gaillard Thomas reports a case where he cut into the sac through the vagina by means of the incandescent knife attached to the electro-cautery apparatus. The patient narrowly escaped with her life, but finally recovered. In the latest edition of his work on diseases of women, Dr. Thomas recommends Paquelin's cautery brought to a red heat. After cutting slowly through the sac, he advises removing the fetus but not the placenta, and then filling the sac with antiseptic cotton, which should be removed once in thirty-six hours. He offers the operation only, however, in cases where the severity of the symptoms demand immediate action.

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[1] During the reading of this paper, a favorable case was reported to the members of the Co. Soc. by Dr. Jacobi.

[2] Fraenkel: Zur Diagnostik und operativen Behandlung der Tubar-Schwangerschaft. Arch. f. Gyn., Bd. XIV., p. 197.

[3] Joulin: Traité complet des accouchements, p. 968.

[4] Cohnstein: Beitrag zur Schwangerschaft ausserhalb der Gebärmutter. Arch. f. Gyn., Bd. XIV., p. 355. Hennig reports likewise a case operated on by Koeberlé, where profuse hemorrhage occurred. Not stated whether patient recovered. Die Krankheiten der Eileiter und die Tuben-Schwangerschaft, p. 138.

The Faradic and Galvanic Currents.—The transmission of the faradic current through the ovum has proved a safe and efficient method for destroying the life of the fetus during the first three months of its existence. The application consists in passing one pole into the rectum to the site of the ovum, and pressing the other upon a point in the abdominal walls situated two to three inches above Poupart's ligament. The full force of the current of an ordinary one-cell battery should be employed for a period varying from five to ten minutes. The treatment should be continued for one or two weeks, until the shrinkage of the tumor leaves no doubt as to the efficacy of the galvanic action.

CASE.—*Tubal Pregnancy—Embryo Destroyed by Faradic Current—Recovery of Mother.*—Last year, on the 23d day of October, a lady called at my office, saying that she had done so at the request of Dr. Keyes, who had expressed his conviction that certain intractable stomach symptoms, for which he had treated her, were connected with some derangement of the sexual apparatus. I learned from her that she was twenty-eight years of age, that she had been twice married. Soon after her first marriage, she had become pregnant, but aborted at the fourth month. She had been united to her present husband seven years, during which period she had been sterile. On examination, I found a uterus slightly enlarged, with some cervical catarrh, but otherwise apparently normal. I therefore returned her to Dr. Keyes, with the assurance that there was not sufficient trouble with the uterus to call for active treatment. A week later, the lady called again, with a message from Dr. Keyes that she must have some uterine disorder, and that he would like to have me examine her again. Upon this second visit, by more careful inquiry, I ascertained that she had not regularly menstruated for nearly two months, but for a month past had suffered from a slight but continuous sero-sanguinolent discharge. I thought, upon making an examination this time, that I could detect a slight increase in the size of the uterus, and asked, therefore, to be permitted to inspect the breasts. A very distinct, well-marked areola justified me in expressing my strong suspicions of pregnancy—an opinion which was received with incredulity. On the 8th of October, the lady's husband called at my office to say that his wife was very sick, and that Dr. Keyes would like to have me take the entire charge of her. I found her very pale, cold, nauseated, with a distended colon, and considerable abdominal tenderness. During the night, she had endured agonizing pain, for which a hypodermic injection of Magendie's solution had been given her by Dr. Louis Stimson. I concluded, from her history and appearance, that she had had a violent attack of colic, and was, at the time of my visit, suffering from the after-effects of the opium. Since I had seen her, ten days before, the uterus had still further increased in size, and the mammary signs were so characteristic as to leave little doubt as to the correctness of the diagnosis of pregnancy. As, however, the sero-sanguinolent discharge had greatly increased, I felt it my duty to warn her of the probability of an impending abortion. On Sunday, the 14th of November, I was sent for to examine something the patient had just discharged. It proved to be the decidua, which had been thrown off entire from the walls of the uterus. My first thought was that the ovum had aborted, and been discharged unperceived; so I assured my patient that her troubles were over, and that she had no further cause for worry. About 2 o'clock the next morning, I was awakened suddenly by the violent ringing of my bell. As I started from bed, the truth flashed across me: Indubitable signs of pregnancy, sero-sanguinolent discharge, violent pain, a condition which, a few days before, verged upon collapse, and, finally, the expulsion of the decidua; these symptoms pointed to one thing only, viz.: an extra-uterine pregnancy. I was consequently not surprised to hear a voice calling through my tube: "Doctor, come quick; my wife is dying!" I found her in fact cold and blue, with thready pulse, and bearing down pains of an agonizing character. It took but a moment for me to detect a well-defined round fluctuating tumor to the side of the uterus, covered with pulsating vessels, which furnished the last link in the chain of evidence. A hypodermic dose of morphia quieted the pains. I remained with my patient till morning, and then sought the opinion and advice of Prof. Thomas, who fully confirmed my diagnosis, and added, as a voluntary contribution, that I had better act quickly, as, unless the growth was arrested, the patient would be a dead woman inside of a week. Dr. Thomas counselling the faradic current I determined to give it a trial, though decidedly sceptical as to the result. An ordinary one-cell battery, made by the Galvano-Faradic Company, was used. I began on Monday afternoon by placing the negative pole over the tumor through the vagina, and the positive pole upon the abdominal wall, about three inches above Poupart's ligament. On the following Wednesday, the tumor had grown larger, more tense, and bulged the vaginal wall downward toward the vulva. I entreated Dr. Thomas to call again, as I felt anxious to at once cut into the sac through the vagina with the incandescent knife, and thus at least escape the imminent danger of rupture. Dr. Thomas, however, argued strongly in favor of persevering with the current, recalling the successes already attained with the method, and pressing the immediate and remoter dangers of hemorrhage from not only the sac and placenta, but from the large arteries which were felt pulsating in the vaginal walls. Admitting the force of his argument, I renewed once more the passage of the faradic current, only this time using the full force of the battery, and placing the negative pole in contact with the tumor through the rectal in place of the vaginal wall. The result justified the most sanguine expectation. The next day the sac felt flaccid, and by the end of the week it had lost its regular outline. On the tenth day, the last application was made. The shrinkage had become so unmistakable that no doubt was now left as to the death of the embryo. The patient thenceforward made an uninterrupted convalescence, and is now in the enjoyment of perfect health. A small hard painless mass, not much larger than an English walnut, alone remains as a monument of the murdered embryo.

The successful employment of the faradic current in extrauterine pregnancy we owe to Dr. J. G. Allen, who reported two cases of recovery through its instrumentality, in 1872. His first case occurred in 1869, the second in 1871. Previously, in 1859, Burci had succeeded in shrivelling up the ovum in a case of tubal pregnancy with the galvanic current, transmitted through the tumor by means of two acupuncture needles. In 1866, Dr. Braxton Hicks tried the faradic current, but abandoned it after the second application. Dr. Allen was apparently in no haste to report his triumphs, but appears to have mentioned them incidentally in the course of a discussion before the Obstetrical Society of Philadelphia. So little pains did he take regarding his discovery, that the subject was nearly forgotten, until a new success was reported by Drs. Loveing and Landis, of the Starling Medical College, in 1877. Since then, Landis has reported a second case of recovery, and one each have occurred in the practice of J. C. Reeve,[1] H. P. C. Wilson,[2] Harrison, and myself. In three cases, one treated by Dr. McBurney,[3] one by Dr. C. E. Billington, and one by Dr. Rockwell, the galvanic current, with one hundred and twenty interruptions to the minute, was employed with equally favorable results.[1]

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[1] Reeve: Trans. Am. Gyn. Soc., Vol. IV., p. 313. Allen's case is referred to by Reeve.

[2] Wilson: AM. JOUR. OBST., Vol. XIII., p. 836.

[3] McBurney: Case of Tubo-Interstitial Pregnancy. N. Y. Med. Jour., Vol. XXVII., p. 273.

Now, when we remember that of one hundred and fifty cases of tubal pregnancy collected by Hennig, only seventeen survived; when we compare the results from the faradic current with those obtained by other methods, and add to them the facts that so far, since Allen's first report, his method faithfully carried out has proved uniformly successful, has possessed no drawbacks, and that all the women treated are, as I have learned from private inquiry, enjoying good health at the present day, it certainly is no more than due to Dr. Allen to give him a high place in the Olympus where sit the select ones who have deserved well of their fellow-men.

When the tube ruptures without previous warning, treatment should be directed to the arrest of internal hemorrhage and the removal of shock. An ice-bag applied to the abdomen meets the first indication, but is to be employed with circumspection where great depression already exists. Compression of the aorta, or a sand-bag laid upon the abdomen over the site of the ovum, may prove of service. The patient should be cautioned to maintain the most perfect quiet; opiates should be administered, and stimulants should be given in small quantities, but at short intervals. The subsequent treatment should be that for peritonitis.

Laparotomy.—As under careful management rupture of the tube most often proves fatal, Kiwisch recommended in such cases to make an incision four or five inches in length through the abdominal wall along the linea alba. In order to be sure that internal hemorrhage had really taken place, he advised, when the peritoneum was reached, to first make a small puncture, and to introduce a pipette into the abdominal cavity. If the presence of blood was detected, the peritoneum should then be laid open the length of the abdominal wound, and after first tying the bleeding vessels, the sac should be removed, and the peritoneum carefully cleansed. Strange to say, intelligent as these instructions seem, no one, in these days of abdominal surgery, has so far had the hardihood to carry them into execution. The reasons for this backwardness are probably to be found in the uncertainties of the diagnosis, the risk of finding the sac hopelessly matted to the adjacent viscera, the dislike for operating upon a dying woman, and the fact that a considerable number of spontaneous recoveries occur, either from the mummification of the fetus, or by the limitation of the sanguineous effusion and the production of a circumscribed hematocele.

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[1] Verbal report of Dr. Rockwell at the Co. Society, in the discussion following the reading of the paper. In the McBurney case, two applications: in Billington's, four; and in Rockwell's, a single application sufficed to destroy the embryo.

2d. CASES OF ADVANCED GESTATION (fetus living).—During the progress of gestation, most patients suffer from transient, though often severe attacks of peritoneal inflammation, from pains caused by the fetal movements, from irregular uterine hemorrhages, from inability to take food, and from the resulting emaciation and depression of the vital powers. The occurrence of labor is apt to excite peritonitis, and may be associated with separation of the placenta, hemorrhage into the sac, and disruption of the sac-walls. These manifold sources of danger have been advanced as grounds for early operative interference; and, assuredly, laparotomy, furnishing as it does an opportunity to rescue the child from certain death, ought to enjoy the highest degree of professional favor, provided its performance does not at the same time increase the jeopardy in which the mother's life is placed. To decide this point, it is necessary to inquire as to the results thus far obtained from its employment. Parry reported twenty cases of so-called primary operations, *i. e.*, operations performed during the life of the child, by means of which eight children and six mothers were saved. This, though not a particularly brilliant showing, was thought to furnish encouragement to continued trial, with the belief that experience would so far lead to improvements in methods of operating, and in the care of patients, as eventually to raise laparotomy for the removal of an extrauterine fetus to the level of other forms of abdominal surgery. An examination of Parry's table does not, however, warrant his frequently quoted statement. Five of the reported maternal recoveries ought to be stricken out altogether.[1] In the sixth case (that of Hooper, No. 14), it is simply stated "the cyst had burst into the bowel," and that the child was dead. Whether the death of the child long preceded the operation, it is impossible to determine. Litzmann[1] furnishes the results of nine additional operations, with only one recovery, viz., the now famous case of Jessop. Thus, in twenty-four cases of primary operation, only one mother certainly survived. If we admit Hooper's case, the result will stand twenty-two deaths and two recoveries. If we accept Parry's statement as approximately correct that, in four hundred and ninety-nine cases of extrauterine pregnancy, including one hundred and seventy-four cases of ruptured cyst, the mortality was 67.2 per cent, it is evident that much remains to be done in the way of perfecting the primary operation, before its admissibility, except under desperate conditions, can be recognized. In ten cases reported by Litzmann, only four children survived the third day.

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[1] *Vide* Parry: On Extrauterine Pregnancy, p. 229. Cases 5 and 6 are the same. They were found by Parry in different journals—in one case

The unavoidable source of danger in the primary operation lies in the impossibility of removing the placenta, owing to the absence of any physiological contrivance to check hemorrhage from the maternal vessels. Even when the placenta is left in situ, fatal hemorrhages may occur during the process of its elimination. Again, in the proportion of one case to six, the placenta has been found in the line of the abdominal incision.

The extraction of a living child through an incision in the vaginal wall was reported by Dr. John King, of Georgia, in 1817. The mother made an easy recovery. Campbell reports nine cases. with the saving of five mothers and five children. Parry increased the number to fifteen, with six recoveries. No recent successes have been announced. Bandl,[2] in 1874, operated under what he

ascribed to Schreyer, who was the principal in the operation, and in another to Zwanck, who was present as an assistant. Litzmann, on seemingly good grounds, maintains that Schreyer simply performed Cesarean section upon a one-horned uterus.

In Decoene's case (No. 9) of twin pregnancy, one of the children passed into the abdominal cavity through an opening in the uterus, formed by the gaping of the line of union at the site of a previous Cesarean section.

In Stütter's case (No. 10) the operation was performed in the forty-fifth week, six weeks after the death of the fetus.

In Ramsbotham's and Adams' case (No. 11) the fetus had been dead six months. Operation in the fifteenth and the sixteenth month (Litzmann).

[1] Litzmann: Zur Feststellung der Indicationen für die Gastrotomie bei Schwangerschaft ausserhalb der Gebärmutter.

[2] Billroth: Handbuch der Frauen-Krankheiten, p. 87.

regarded as most favorable conditions, but the patient died at the beginning of the third day. The operation is only applicable to cases where the sac is low down in the pelvis, and the presenting part can be easily reached through the cul-de-sac of Douglas.

3d. Cases of Gestation Prolonged after the Death of the Fetus.—It is an accepted rule not to operate in advanced extrauterine pregnancy during the continuance of labor-pains, as the expulsive efforts at the same time diminish the chance of saving the life of the child, and increase the danger of the mother. Opiates should be administered, and absolute rest enjoined, with the view of hindering the separation of the placenta, an accident necessarily followed by hemorrhage, and possibly by rupture of the sac.

After the death of the fetus, the most favorable result consists in absorption of the amniotic fluid, continued shrinkage of the sac, and the conversion of the fetus into a lithopedion. More commonly, however, the fetus undergoes maceration, and the amniotic fluid, soiled with meconium and serum, and stained with dissolved coloring matter of the blood, becomes turbid, and of a dirty red, reddish-brown, gray, or greenish-yellow color. The patients suffer from attacks of pain, due to peritoneal irritation, loss of appetite, vomiting, and diarrhea, from fever with irregular chills, from emaciation and general prostration. Owing probably to the contiguity of the intestines (Litzmann), septic germs are liable at any time to pass into the sac and excite decomposition. When an incision is then made to remove the fetus, the latter is found in a putrid condition, and the amniotic fluid consists of a chocolate-brown, purulent menstruum, of greater or less consistency. The nature of the changes that have taken place are evidenced by foul odors, and the escape of stinking gases. It is obvious, therefore, that the presence of a dead fetus seriously compromises the safety of its possessor. To be sure, many cases have been recorded where eventually suppurative processes have led to the formation of fistulous openings, communicating with the abdominal walls, the rectum, the vagina, and even the bladder, through which the fluid contents first escape from the sac, and afterward the piecemeal elimination of the fetus spontaneously takes place. As under these circumstances the enlargement of the openings into the cyst, the removal of the contents, and the treatment of the cavity like an ordinary abscess, is attended with but moderate risk (three deaths in twenty-nine cases of abdominal fistula, according to Parry), it has been proposed to postpone surgical aid until nature indicates the channel by which elimination is to be effected. This proposition, however, ignores the deplorable condition to which the suppurative process inevitably reduces the patient, and the incidental dangers to life.

During the last decade, the success of secondary laparotomy, as distinguished from that performed during the life of the fetus on the one hand, and simple incisions designed to enlarge fistulous openings on the other, has been such as to warrant its being placed in the category of justifiable operative procedures. In thirty-three cases collected by Litzmann (twenty-four between 1870–80), there were nineteen recoveries. Of the two dangers inherent to the primary operation, viz., hemorrhage and septicemia, the former is greatly lessened by the cessation of the fetal circulation, and by the gradual thrombosis and obliteration of the maternal vessels, and the cutting off of the blood supplies to the placenta. With the present perfection to which antiseptic measures have been carried, the risks from septicemia are diminished, though not entirely done away with.

The time for the performance of laparotomy is of some importance. All of Litzmann's cases which were operated upon during the first month subsequent to the decease of the fetus (seven in number) died, while in twenty-six cases, operated upon at periods varying from five weeks to a year after the decease of the fetus, there were but seven deaths. The former mortality was partially due to the desperate condition of the patients, which determined the early date of the operations, and in part to the occurrence of profuse hemorrhages from the patent mouths of torn placental vessels.

There are as yet no signs known by which the time at which the obliteration of the placental vessels becomes complete can be ascertained. Schroeder removed the placenta three weeks after the cessation of fetal movement without loss of blood, while a patient of Depaul expired from placental hemorrhage from an operation performed four months after the fetus had perished. It is certainly evident that, when the circumstances admit of delay, it is best to defer operative measures and treat the patient symptomatically, as Litzmann suggests, with pure air, nourishing food, quinine, and gentle laxatives, until the obliteration of the maternal vessels has probably taken place. In case, however, of marked septic symptoms, the opening of the sac should not be delayed, as the subsequent use of antiseptics at least is calculated to restrain the pernicious influence of the decomposing contents upon the entire organism.

The operation for laparotomy should be performed with antiseptic precautions. The incision is usually made along the linea alba. In case the sac is not found adherent to the abdominal walls, it should be stitched, previous to opening, to the cut borders of the abdominal wound. The placenta should be left to come away spontaneously, unless it occupies the site of the incision. The wound should be closed above, and left open below for the passage of the cord, and the introduction of antiseptic injections.

No rules can profitably be laid down as to the plans to be pursued in the enlargement of fistulous openings. Each case must be treated upon its own merits, and the surgical aid rendered must be adapted to the individual peculiarities which characterize it.

SPECIAL STATISTICS OF THE CESAREAN OPERATION IN THE UNITED STATES, SHOWING THE SUCCESSES AND FAILURES IN EACH STATE.

ONE HUNDRED AND TWENTY OPERATIONS WITH FIFTY RECOVERIES. THEIR RESULTS COMPARED WITH THOSE OF CRANIOTOMY, OÖPHORO-HYSTERECTOMY, AND LAPARO-ELYTROTOMY.

BY

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MANY inquiries made during the past year have decided me to report the present state of my Cesarean researches, which are assuming an additional value, in view of the rapid progress made by the Porro modification, and the fact that, thus far, the old operation in this country has saved a larger percentage of women than the new one has collectively in the several countries in which it has been performed. The contest between the classic section and its several rivals may be said to have already resulted in favor of the Porro modification, in Italy, Austria, and France, where the marked success of the new over the old operation has decided the question of preference on the basis of relative prognosis. As a hospital operation, the results in Milan, Vienna, and Paris, have probably ended the days of the old, and in those cities almost universally fatal Cesarean section, its rival having saved the lives of more than one-half of all the women there subjected to it. But this does not as yet decide the question for us in America, where but one Cesarean case in thirty has been under hospital care. It is true that the four women treated in our hospitals all died; and it is possible that some of them might have been saved under the Porro operation; but *it must be shown that the new method promises better success in private practice than the old, before it can successfully rival it in the United States.* The *early-performed* Cesarean operations in the United States have saved 75 per cent of the women: all classes of cases have resulted favorably in 41$\frac{2}{3}$ per cent. Now what has the Porro operation accomplished thus far? It has saved 28 out of 67 cases, or 41$\frac{53}{67}$ per cent. In Great Britain and Ireland, there have been 134 Cesarean sections. Of these, there were 32 in hospital, of which 6 were saved, or 18$\frac{3}{4}$ per cent against the general result of 18 per cent, the hospitals saving a fraction more than in private practice. Great Britain has not as yet tried the method of Porro, although it is highly probable that it would be found to give a larger proportion of cures than the old Cesarean section. In view of the care and skill exercised in English hospitals in latter years, in cases requiring gastro-hysterotomy, and of the disappointing results obtained, it would appear desirable, for the benefit of humanity, that the Porro modification should be thoroughly tested by British accoucheurs. I do not feel that there is the same demand for a change in the United States, where the old operation has had so large a measure of success, especially when performed in a few hours after the commencement of labor. We have yet to test in gastro-hysterotomy the improvements which have so materially lessened the mortality in ovariotomy.

Let the Cesarean operation be one of election and anticipation, as the most successful Porro sections have been; let it be performed under carbolic spray; the abdominal cavity thoroughly cleansed from blood and amniotic fluid; the uterine wound, if need be, closed with silver wire; let a glass drainage tube be introduced, and the parts be dressed according to the plans of Keith and Lister; and we should expect in this country to save more cases than has been done, in proportion, in any European hospital, under the Porro method. I have no objection to the introduction of the plans of Porro and Müller, except that I am not convinced of the necessity for so doing. In our cities, where the requisite number of assistants may be readily obtained, and in our hospitals, the Porro method is less objectionable; but in country practice, I should prefer the old operation performed early, on account of its requiring but little manual aid, much less skill, and far less time than the new one. The patient is also slower in recovering from gastro-hysterectomy than gastro-hysterotomy as a general rule, the abdominal wound taking a longer time to heal.

In looking over my record of *country cases*, I find but little to encourage me in recommending the Porro modification as an improvement to country accoucheurs and surgeons, on the ground of prospective success. *In the open country*, there have been 32 operations with 20 recoveries, or a saving of $62\frac{1}{2}$ per cent. This is quite in contrast with the results in towns and villages as a second classification, and in cities as a third. *In the towns and villages*, 19 women only have been saved out of 55, or $34\frac{6}{11}$ per cent. *In the cities*, we have a fraction less, or 11 recoveries after 33 operations, or $33\frac{1}{3}$ per cent. The quota of cities is as follows, viz.:

	DIED.	RECOVERED.		DIED.	RECOVERED.
Portland, Me.,	1	–	Norfolk,	1	–
New Haven,	1	1	Mobile,	2	–
Albany,	1	–	New Orleans,	3	1
New York,	6	1	St. Louis,	1	–
Brooklyn,	–	1	Cincinnati,	1	–
Philadelphia,	2	2	Toledo,	–	2
Baltimore,	1	–	Detroit,	–	1
Richmond,	2	1	San Francisco,	–	1
	14	6		8	5

It will thus be seen that the operations in villages, towns, and cities, where assistants may be most readily obtained, should the Porro modification be thought preferable, have saved 30 out of 88 women, or 34$\frac{1}{11}$ per cent, which is much less than the general result (41$\frac{53}{67}$ per cent) of the Porro operations in Europe and this country. In 1880, there were 25 Porro operations performed, resulting in 9 recoveries, or 36 per cent. This result is not very encouraging to us, where the old plan has saved a higher percentage in the general average.

In our cities, where two-thirds of the cases under gastro-hysterotomy have perished, and where delay has been a great obstacle to success, the Porro operation promises a better result. If a woman has been so long in labor that the child has become putrid, the Müller modification offers the best security against the possibility of septic infection, by the removal of the organ which contains the poisonous material, in such a way that it cannot possibly escape into the abdominal cavity. If the Cesarean cases in our cities were operated upon in good season, the mortality among them would be very much reduced, but as it is not to be expected that the class of accoucheurs into whose hands the deformed poor *usually* fall, will wisely conduct their cases and see that they are promptly relieved by operation, the next best thing to be done is to test the Porro method and see if by it the dangers incident to delay may not in some measure be counteracted. The contrast between the results in our cities on the one side, and the small towns and open country on the other, is quite as much marked after *étronotomy* following rupture of the uterus, as after *gastro-hysterotomy*. In my paper on this subject it will be noticed that but 6 out of 19 women in the cities recovered, whilst in the small towns and country 15 out of 21 were saved.[1]

We have then in the United States two prognostic conditions to be considered, in recommending delivery by the abdomen, in cases where that by the pelvis is impracticable or unadvisable. In cities it is folly to continue the Cesarean operation by preference, unless the case should fall into the hands of skilful accoucheurs and the surgeon be summoned to operate in good season. Better far to try the Porro-Müller plan and secure the woman against the risk of escape of the uterine fluids into the abdominal cavity. It is true that suturing the uterine wound with silver wire has saved the lives of two women after labors of seven and ten days respectively; but the risk of septicemia is greater than after the entire removal of the uterus.

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[1] AM. JOUR. OF OBSTETRICS, October, 1880.

The success of Dr. Candido Ramello, of Turin, in July last, shows the capability of the Porro-Müller modification. Dr. R. operated on a dispensary patient of nineteen years of age, in the garret of a six-storied house, after a labor of nine days; turned out the uterus entire; removed it with its putrid contents; secured the pedicle in the abdominal wound, and saved the woman, who was well when I heard from the operator recently. This patient was rachitic and subsequently affected with caries of an ilium in childhood; had been under the care of a midwife; was operated upon in the heat of summer (July 3d, 1880), and under circumstances of poverty and exhaustion very antagonistic to success. She very narrowly escaped death, but still recovered. After such a success we cannot but recommend the same form of operation in cases similar to those which have occurred in New York, New Orleans, and less frequently in several other of our chief cities, where labor had lasted many hours before the operator was summoned. It will be noticed that the mortality in New Orleans has been 75 per cent, whilst in the balance of the State, with four times the number of operations, it reached but 12½ per cent. This is the more remarkable when we consider that 11 out of the 20 cases were obtained after a long laborious search by means of circulars of inquiry and letters widely distributed.

The success of the Cesarean operation upon the slave women on the plantations of Louisiana has been very remarkable and is not easily accounted for. The skill of her French surgeons and associates has had much to do with it, but this is far from being the chief advantage. The climate has no doubt had its influence, all of the cases, with the exception of two, having resided near the 30th parallel, in the Parishes of Ascension, Assumption, St. James, and St. Landry; but aside from the influence of climate, the season of the year, the skill of the operator, and condition of the subject, there is a mysterious power of recovery that appears to belong to the woman herself. One woman is operated on with favorable prospects and dies, when a desperate case, to the astonishment of every one, recovers.

Some might attribute the success to the subjects having been of African blood, but for the fact that Mississippi, Alabama, and Georgia have collectively lost 13 out of 16 of the same race, and saved 2 white women out of 5.

On this continent, which is quite in contrast with the results in the old world, the operation has succeeded in largest proportion in its warmest regions. From Mexico, Cuba, Jamaica, Martinique, and Tortola, we have reports of 8 cases with 7 cures, one white woman having twice recovered. These cases added to those of the States, give 128 operations for North America, and 57 recoveries; with 5 treated in hospital. Of the two Jamaica cases, one treated in the Lady Berkly Lying-in Hospital under the care of Dr. Izlett W. Anderson, 1863, is, perhaps, the most remarkable of all the 57 recoveries; and the operator, in view of the marvellous escape of the woman, can only account for it on the basis of the perfection of the climate.[1] In Italy, the southern portion appears to have had no advantage over the northern, as even in Naples there were 25 deaths after 27 operations, which is higher than the general mortality, instead of less. As far as I have received the reports of Italy, amounting to 230 cases, there has been a mortality of 75 per cent. The Porro operations for the same country number 29, with 10 recoveries and 19 deaths, or $34\frac{14}{29}$ per cent of cures, which is above the general average as before rated. In Milan, 4 out of 7 recovered, and in Turin, 4 out of 7 died. The preference for the Porro method in Italy is very decided.

During the year 1880, I added nine reports to our record of Cesarean cases, one dating back to 1852, and another to 1856. For the year, I find but two cases, one of which recovered, the woman having been in labor but three hours. This makes our timely operations 28, and recoveries 21. For some years prior to 1880, our Cesarean cases averaged about 3 in each year. The deficiency of the last year was more than compensated for, by the performance in New York and Philadelphia, of three Porro operations. Of these 5 cases delivered under abdominal section 2 recovered; four of the children were delivered alive, and the fifth was premature and some time dead. Through the prompting of Dr. Battey, of Rome, Georgia, I was induced to enter upon a new search in his State, which resulted in the discovery of four unrecorded cases. Dr. J. N. McCormack, after persevering for nearly a year, obtained the notes of an operation performed in December, 1852, by the

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[1] Edinburgh Med. Jour., Vol. X., page 142.

TABLE OF CESAREAN CASES OPERATED UPON IN THE DIFFERENT STATES, SHOWING VERY MARKED DIFFERENCES IN SUCCESS.

STATES.	CASSE.	WOMEN.		CHILDREN.		WHITE CASES.	BLACK CASES.	WHITE WOMEN.		BLACK WOMEN.	
		DIED.	LIVED.	DEAD.	ALIVE.			DIED.	LIVED.	DIED.	LIVED.
Louisiana . . .	20	5	15	11	9	1	19	..	1	5	14
New York. . . .	14	11	3	10[1]	5	12	2	10	2	1	1
Alabama.	10	7	3	8	2	3	7	1	2	6	1
Ohio	10	3	7	4	6	10	..	3	7	..	..
Pennsylvania.	10	6	4	5	5	7	3	4	3	2	1
Virginia	9	7	2	6	3	3	6	2	1	5	1
Indiana	6	4	2	4	2	5	1	4	1	..	1
Mississippi. . . .	6	4	2	1	5	1	5	1	..	3	2
Georgia	5	5	..	4	1	1	4	1	..	4	..
Michigan.	3	2	1	1	2	3	..	2	1	..	..
Missouri	3	3	..	3	..	3	..	3	..	..	..
Arkansas.	2	1	1	..	2	..	2	..	..	1	1
California.	2	1	1	2	..	2	..	1	1	..	..
Connecticut. . .	2	1	1	1	1	..	2	..	..	1	1
Illinois	2	..	2	1	1	2	..	..	2	..	..
Iowa.	2	1	1	1	1	2	..	1	1	..	..
Kentucky	2	1	1	2	..	1	1	..	1	1	..
N. Carolina. . .	2	..	2	1	1	1	1	..	1	..	1
Wisconsin . .	2	2	..	1	1	2	..	2	..	..	..
Maine	1	1	..	..	1	1	..	1	..	..	..
Maryland.	1	1	..	1	..	..	1	..	..	1	..
Massachusetts	1	..	1	..	1	..	1	..	..	..	1
New Jersey. . .	1	1	..	..	1	1	..	1	..	..	..
N. Hampshire	1	1	..	..	1	1	..	1	..	..	..
S. Carolina . .	1	..	1	..	1	..	1	..	..	..	1
Tennessee.	1	1	..	..	1	1	..	1	..	..	..
Not stated . . .	1	1	..	1	..	1	..	1	..	..	..
Total.	120	70	50	68	52	64	56	40	24	30	26

Cases reported in medical journals, 65 ; recovered 35 = $53\frac{1}{13}\%$ of cures.
Cases obtained through correspondence, 55 ; recovered 15 = $27\frac{3}{11}\%$ of cures.
Dwarfs from 3 ft. to 4 ft 8 in. high, 24 ; recovered 7. Whites, 5 ; blacks, 2.

White dwarfs, 17 ; black dwarfs, 7. Shortest white recovered, 3 ft. $11\frac{1}{2}$; black, 3 ft. 9. Uterine sutures used in 20 cases, of which 7 recovered. Silver wire was used in 10, saving 5.

late Dr. Frank E. Polin, of Springfield, Kentucky, in which he inaugurated, and with success, the use of the silver-wire uterine suture. In January of that year, Dr. J. Marion Sims published his paper upon the silver suture, and it thus bore fruit at the hands of Dr. Polin, well known in his day as a distinguished surgeon. Mrs. Mary Brown, of Washington County, the subject of this operation, is still living, at the age of sixty-five. She had been in labor forty hours and was much exhausted when the operation was performed. She is probably the oldest Cesarean subject now living in the United States, except Mrs. Reybold of this city, who will soon be seventy-two; she preceded Mrs. Brown in her first operation (1835) more than seventeen years. Mrs. Brown has given birth to two children since the operation. The dystocia arose from hydrocephalus; there was no pelvic deformity.

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[1] One twin pregnancy.

The Polin operation was the first of a series of 10, saving 50 per cent. The other successful sections using the silver uterine suture were made in 1867, 1875, 1877, and 1880. Those of 1875 and 1880 were upon the same woman, a Bavarian. All these (4) women were living at the last accounts, and as far as I can learn have experienced no inconvenience from the presence of the wires. In two instances, one *ante* and the other *post mortem*, the line of wires was examined, and the loops were all found incased in new tissue, the effect of an exudation produced under local peritonitis along the line of incision.

The Toledo double operation increases this class of cases in the United States to 8, and in North America to 9. Five women in the States recovered after the second operation and two died; one died after the third was performed. There were 17 operations performed on 8 women, with only 3 deaths, in the United States, and 19 on 9 women with 16 recoveries in the whole of North America. There has been but one double case in Great Britain, and this has never been reported except in a letter to the writer. The woman was operated upon twice, at an interval of seven years, and died under the second. The late Mr. Henry Jackson, of Sheffield, was the first operator, and his son, Mr. Arthur Jackson, the second. The cases are not recorded in Dr. Radford's statistical tables, just published: the dystocia arose from pelvic exostosis.

From some remarks made by European writers it is evident that they are under an impression that, because of the vast extent of our land, our statistical record must fail to represent the whole truth, and thus can but make too fair a showing of our success. One author, in doubting the thoroughness of the search, instances, as an example of completeness, the statistics of Italy, by Corradi, not knowing that his "History of Obstetrics" fails to give a full record, Prof. C. confining his attention to 158 cases, of which complete accounts could be presented in his tabular statement. As an instance in proof, I have only to state that, in a letter to the writer, Prof. Morisani, of Naples, credits his city with 27 operations, instead of 10, as in Corradi's work. Prof. Corradi does not claim that Italy has saved 33 per cent, although others quoting from his work have done this. This would give the Porro modification but a very slight advantage over the old operation, which, to judge from what I have learned through letters of inquiry, probably did not save in Italy over 20 per cent. I do not claim that I have found all the cases in the United States, but do maintain that, having added 55 unpublished ones, and made a prolonged search, the table must represent very closely the proportionate death record of the whole country. The most important fact brought to our notice is, that the Cesarean operation performed a few hours after the commencement of labor, whether in the country, town, or city, will save from 70 to 75 per cent of the subjects operated upon in the United States. I made this claim in 1872 when I had collected but 17 timely cases, and I repeat it now, after having increased the number to 28; for with the increase, there has been a gradual diminution in the death rate from 30 down to 25 per cent. This class of cases properly represents the dangers of the Cesarean operation *per se*. It is unfair to attribute to the surgery the dangerous condition prior to the delivery, which complicates and adds greatly to the risk. Under this reasoning, to be just to the Porro operation, we must sift out of the record of 67 a number of almost hopeless cases, and enumerate those in which the prognosis was "favorable." This numbering by exclusion will reduce the Porro operations, as far as has been satisfactorily ascertained, to 31, and these resulted in 21 recoveries and 10 deaths. Some of the cases died, which at the time of the operation were apparently in the most favorable condition, and others recovered, when in an almost hopeless state, by reason of a long and exhausting labor. Dr. Coggi, of Cremona, in a letter to the writer, notes the condition of his patient before the operation as "excellent," and states that her labor had only fairly begun; notwithstanding which she died of peritonitis in seven days. Contrast this with the very exceptional case of Dr. Ramello, of Turin, already referred to. The Porro cases noted as "unfavorable" at the time of the operation have only in a very few instances escaped death. The Müller modification appears to offer an additional advantage after prolonged labor; but *it is quite evident that, to secure the best prospect of success, both the Porro and Porro-Müller operations, like the old Cesarean section, must be performed in good season.*

Laparo-Elytrotomy does not appear to have made any advance in the last two years. After saving 4 out of 8 women, and the same proportion of children, in nine years, it seems to have retired, at least temporarily. The fact that 4 out of the 8 subjects had their bladders lacerated shows one serious anatomical difficulty in the operation. In 1878 there were three operations, one in London, one in Sheffield, and the third and only successful one in New York. Not one of the three was in a condition favorable to success at the time of the operation; and in fact but two of the eight cases may be classed as "favorable." This speaks well for the final success of the operation in skilful hands, notwithstanding the risks and difficulties to be overcome in its performance. Thus far it has had no advantage in our country over gastro-hysterotomy with closure of the uterine wound by means of silver-wire sutures; these two forms of operation having saved, respectively, 4 out of 8 women, and 5 out of 10. In either case the subject may become pregnant, as has four times occurred after the wire-suture.

Second Pregnancies.—In 15 women of our record, pregnancy is known to have followed the Cesarean section, a condition to be feared, especially where there is pelvic deformity. In 9 cases, as before stated, a second operation was performed; in 1 the woman aborted; in 3 rupture of the uterus occurred, and laparotomy was performed, saving 2; in 1 of these 2, a second rupture occurred in a third labor, and death rapidly followed as the placenta was over the line of laceration. The lacerations were all in the line of the cicatrices. In one second Cesarean case the ovaries were removed to prevent a third pregnancy, and the woman died. In another, the Fallopian tubes were ligated with success.

The objections, then, to leaving the woman in a condition to become again pregnant are, that she may require a second operation, or may lose her life by uterine rupture; on which grounds the Porro method has many advocates aside from its being in many regions a less fatal expedient. We have had in the United States quite a number of Cesarean operations performed with success upon women in whom there were no tumors or exostoses in the pelvis, and the pelvis itself was not deformed. Such cases might be considered as not requiring the operation, and in some instances, no doubt, it was unjustifiable; but we are to consider the disadvantages under which many of the cases had to be treated in a new country, where the best obstetrical appliances were wanting. Such cases would certainly be unjustly treated if rendered barren by the removal of the uterus and ovaries.

Part of the cases, amounting to 38, in which there was no pelvic deformity or bony obstruction, are among the most remarkable and interesting in our whole collection, and would require long descriptions to do them justice. Some are quite unique, and have probably no duplicate in any country. I will endeavor to present them, although under an imperfect classification, viz.:

	RECOVERED	DIED
1. Occlusion of os uteri with eclampsia; cervix thrown into hollow of sacrum, and position of os unrecognizable. Case on the frontier, in 1828	1	–
2. Occlusion of cervix, with calcareous incrustation blocking up the inner os, and preventing dilatation—Blacks—long in labor	–	2
3. Occlusion of the os uteri, with no os recognizable by the whole hand in the vagina (?)	1	–
4. Occlusion of the os uteri; contraction of vagina, and eclampsia	–	1
5. Occlusion of the os uteri; ulceration of uterus into the rectum, with leg protruding at the anus. Case of missed labor, 8½ months over time	–	1
6. Occlusion of the os uteri and vagina; ten days' labor; fetus putrid	1	–
7. Rigidity of os uteri; Louisiana, 1856; in open country (?)	1	–
8. “ “ “ with convulsions. Georgia; in open country (?)	–	1
9. Rigidity of the os uteri with vaginal occlusion	–	1
10. Occlusion of vagina, from vaginitis following an abortion.	–	1
11. “ “ with eclampsia	–	1
12. Destruction of vagina from sloughing following delivery	2	–

	RECOVERED	DIED
13. Fibroid tumors in the pelvic cavity	1	2
14. " " of the cervix; 1, and body of the uterus, 4	1	4
15. " tumor of uterus, with tetanoid constriction and eclampsia	–	1
16. Impaction of pelvis with a cake of clay (eaten for heartburn) in the lower bowels	1	-
17. Missed labor—fetus retained in utero 33 months over time—foot and hand secured in a pouch by false bands—fistula from uterus through the abdomen. Organ examined bimanually after operation	1	–
18. Impaction of fetus in a transverse position, and found immovable	3	–
19. Impaction of fetus in a transverse position, arm presenting.	3	2
20. " " " " " shoulder presenting	1	1
21. Impaction of fetus, head presenting; child saved; labor 15 hours (!! ?)	1	–
22. Impaction of fetus, head presenting; child dead; labor 61 hours (!! ?)	1	–
23. Impaction of fetus with hydrocephalus; 1852; in open country and in very skilful hands; found delivery through the pelvis impracticable; in labor 40 hours and much exhausted; head perforated	1	–
	20	18

In some few of the above cases, pregnancy again occurred, and the women were delivered naturally. One woman bore twins without any physician being present; another thought the subsequent natural delivery the more painful of the two. One of the twenty has been twice delivered by the aid of instruments. A number of the women who have recovered from the Cesarean section in our country have ceased to bear children, although young primiparæ at the time of the operation.

The success in the 38 non-deformity cases, although remarkable, might have been still greater, but for certain acts of imprudence on the part of the subjects. The form of delivery practised, would no doubt be condemned as improper and uncalled for by many transatlantic accoucheurs. There are cases in the record in which the operation was certainly improper under the form of dystocia existing; but there are others in which the question of relative risk would be decided in favor of gastro-hysterotomy, in view of the degree of success, as shown by the percentage saved. Where the Cesarean operation is as fatal as it has been in England, Austria, and Italy, an accoucheur might be very properly condemned for operating in any case of fetal impaction or malformation; but the reasoning proper in these countries does not appear to apply in the same degree here, where the fatality has been less by more than one-half. Take, for example, the case of transverse position of the fetus, where it has become impacted in the pelvis, and immovably fixed by long-continued uterine pressure. Playfair[1] teaches that, in this condition, "we must resort to the mutilation of the child by embryulcia or decapitation, *probably the most difficult and dangerous of all obstetric operations*," and what he recommends is the almost universal direction of obstetrical teachers. Now, it has so happened in the past that several bold operators in the United States have ventured to violate this rule, on account of the insurmountable difficulties with which they had to contend, for want of the more modern appliances invented for overcoming them, and to perform the Cesarean operation as a substitute. Ten such cases will be noticed in the record, of which seven, or 70 per cent, recovered; three of them had been long under the care of midwives, and two of these died of exhaustion; the third died of shock, after excitement, and getting out of bed on the third day. Six of these operations were performed from 1860 to 1866, since which time there has not been one. Although I am not prepared to recommend the use of the knife in these cases, I am not certain but that its use in extremity would be much less fatal here than embryulcia and decapitation, which are, at best, tedious, difficult, and dangerous with the most approved instruments.

Forty years ago, Dr. James Blundell, who appears to have often thought, much in advance of his own time, wrote as follows:[2] "In transverse presentations, it has been proposed to bring away the child by the Cesarean section, and, after what I have seen of the difficulties and dangers arising from these presentations, I would frankly acknowledge that cases do now and then occur in which I conceive it would be less painful, and on the whole not more dangerous to the mother, to have the child taken out by the Cesarean operation (improved as it may be hereafter), in preference to any other mode." But, being afraid to admit the privilege of such election, for fear of it becoming greatly abused, he protected his opinion, which was anticipatory, as follows: "Against such use of the operation, therefore, in the present state of knowledge, I feel it a duty to raise my voice. In transverse presentations, I cannot allow that the Cesarean incisions are ever justifiable, and the man who, in such circumstances, rashly performs them, would render himself awfully responsible for the result."

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[1] Treatise on Midwifery, 3d Am. Ed., p. 325.

[2] Obstetric Medicine, 1840, p. 151.

In the British Cesarean statistics (134 cases), there is not found a case in which the operation was performed for the delivery of an impacted fetus. In fact, the causes of dystocia have been very limited in number, viz.:

1. Deformity of the pelvis from rickets, mollities ossium, fracture, exostosis, and coxalgia with spine disease.

2. Fibroid tumors of the uterus, tumors of the pelvis and in the pelvic cavity, and a hydatid cyst, supposed, from its density, to be an exostosis.

3. Cancer of the cervix, medullary tumors, cancerous tumor of rectum, cancer of the vagina, and cancer of the uterus.

These are quite in contrast with the remarkable variety of difficulties encountered in the American cases. It is, therefore, very evident that the Cesarean operation, although ruled by the same general laws, must have a different status in the two countries. It might be "awfully responsible" in Great Britain to violate the direction of Blundell in cases of transverse position, but it does not appear to have been so much so here, where seven out of ten were saved. Dr. Blundell feared to recommend the Cesarean section in his lectures as an expedient for extreme cases, under the impression that reckless adventurers might apply the rule as an alternative for turning or other manipulatory methods; and for the same reason to-day, we must be cautious in recommending a *dernier ressort*, which has been so successful in the hands of a few American operators. It would be a mistake to suppose that these bold men were in any degree reckless in their work, or ignorant pretenders. Some were, to my knowledge, experienced surgeons or accoucheurs, and only operated because they had failed to deliver by the pelvis after many trials. The success in these ten transverse cases is very remarkable, when we consider that they were all long in labor before the operation. It can only be accounted for by the fact that the subjects were in good physical condition prior to labor, and had never been enervated by rickets or other bone disease. If these cases may be considered as fairly representative, then there is no reason why abdominal delivery may not be regarded as a fair expedient in very severe cases.

In cases of occlusion or rigidity of the os uteri, if the vagina is not occluded, the resistance ought to be overcome by manipulation, or, as a last expedient, by incision of the cervix ("*hysterotomy*"). It is very seldom that any form of cervical stenosis, except cancerous, will be found to act as an absolute preventive of delivery through the pelvis. It is possible for inflammatory induration to constitute a condition much more dangerous to overcome by hysterotomy than gastro-hysterotomy, and I believe that in such cases the latter should be preferred; but in extreme cancerous induration, infiltration, and ulceration there is no alternative, if the woman is to be delivered before death. It is surprising what degree of dilatation the os uteri is capable of, when not diseased. I once heard Jobert (de Lamballe) say in a lecture, that to cure a utero-vesical fistula he had incised and closed up the os uteri of a married woman, informing her that she could not again become pregnant, but would menstruate through her bladder. To his surprise, she presented herself in a pregnant state, and he discovered that the cervix was pervious at one point, admitting a small probe. This woman bore a living child, without any very marked trouble, and was cured of her fistula.

Tumors as an Impediment.—Although seven out of our nine tumor cases have perished, this is not to be taken as a measure of danger in this form of dystocia, as the cases were, with a few exceptions, in an exhausted condition, from long delay before the operation. The two women that recovered were in labor respectively nine and fourteen hours. The causes of death were—exhaustion, 2; septicemia, 2; peritonitis, 1; eclampsia, 1, and hemorrhage and exhaustion, 1. Strange as it may appear, in view of the experience of Great Britain, where there have been fourteen cancer cases, with three women and eleven children saved, we have not had a report of one operation performed in a case of cancer of the uterus, vagina, or rectum in America. When I first examined this class of cases, I was led to believe that the existence of even a non-malignant tumor greatly increased the risk of death after the operation; but since the success in Brooklyn, under Dr. Cornelius Olcott, reported in 1879, in a uterine fibroid case, after a labor of nine hours, I have been led to believe that the condition of disease had had much less to do with their fatality than that of exhaustion from prolonged labor. It will interest two of our Porro operators, who have had the same experience, to know that Dr. Olcott's patient was taken with *phlegmasia dolens* twenty-two days after the operation.

Destruction of the fetus, as an alternative for the Cesarean section.—There can be no question, at least in this country, in view of the success of the elective Cesarean operation, but that craniotomy is, in many instances, performed where the abdominal section should be. It is impossible to estimate, satisfactorily, the proportionate risk in all craniotomy cases, but enough is known to show that in cases of extreme pelvic deformity the mortality is not materially different between the two forms of delivery, as regards the mother, although the opposites of each other as regards the child. If it is correct, as has been estimated, that the loss of women under craniotomy in general amounts to 20 per cent, and in cases having a pelvic conjugate of 2½ inches or less, to 37½ per cent, then the Cesarean operation, performed early, would have a decided advantage with us, where, as before stated, it has saved 75 per cent; besides which, 82 per cent of the children have been removed alive. The destruction of infants in labor, by craniotomy, cephalotripsy, decapitation, and evisceration in our land, although possibly less than in any other, must amount to fully one in two thousand births, or possibly in larger proportion, if we may judge by British and Continental records. The introduction of the cephalotribe has lessened somewhat the dangers of delivery in extreme pelvic deformity, and increased the facilities for extracting the destroyed fetus, but it is questionable whether it has not, by diminishing the necessity for the performance of the Cesarean section, increased the proportionate mortality of the cases operated upon.

There ought to be a much larger proportion of Cesarean deliveries, and a corresponding diminution in the number of cases in which the destruction of the fetus is a question of election. I am not yet prepared to advocate the use of the knife in all the cases where infantile destruction is considered of necessity as the alternative. There are women who cannot be delivered of a living fetus either by the forceps or turning, except on occasions where, for some reason, the head is under size, and yields readily to pressure. I once saw a woman of this class who lost three out of six children by the perforator, delivering herself of the three smaller ones. She had a small but well-formed pelvis; was a very stout woman, and had at intervals large children, with heads strongly ossified and entirely too large to pass through the pelvis until reduced by opening and compression. In such cases, there is too little risk in the craniotomy to warrant us in performing the Cesarean operation as one of election. The uncertainty of the child's life, and the greater value of that of the mother, must continue to weigh against the former, in the cases where the pelvis is but moderately contracted, until it can be demonstrated that the improvements in abdominal surgery have made it equally safe to deliver by gastro-hysterotomy or craniotomy in such cases. In a few countries of Europe, the Cesarean operation is performed in cases of quite moderate pelvic deformity, but it is just the reverse in Great Britain and our own country. I believe this practice is carried entirely too far, and that in cases of 2½ inches conjugate, or less, we ought, if called early, to operate by the abdominal incision in preference.

The fetus has a certain degree of right to be regarded in the calculation of risk, and should be saved, if possible; but if the woman is in *far more* danger from the Cesarean operation than from craniotomy, we are not prepared to risk the life of the mother in order that a child, almost certain to be orphaned, and, if so, likely to die young for want of a mother's care, may be saved alive. When calculating the relative importance of the lives of the woman and fetus, we must remember that one-half of the children born die before the age of five years, and that the children saved by the Cesarean operation are on the average unusually short-lived, due, in a large measure, to the want of proper care.

Efforts have been made in the past to create a strong feeling against craniotomy, by characterizing it as a murderous, cruel, selfish, and dangerous mode of relief; but it has been found impossible to substitute the Cesarean delivery for it, except to a limited extent. If the mother has entire confidence in her physician, and he assures her that delivery by the pelvis is impossible, or is next to certain death to her, she will generally submit, but often not until her sufferings have become very great and her chances for recovery diminished by delay. *Let her be impressed with the belief that the destruction of her child will, in all probability, save her life, and she will rarely submit to the use of the knife to save that of her offspring.* Under the baptismal belief taught in the Roman Catholic Church, women may be persuaded to submit, as a duty, to the Cesarean operation, where, perhaps, craniotomy might be less dangerous, but even here the influence brought to bear may fail. In the case under Dr. Nancrede, in this city, in 1835, it was only by bringing in her priest to his aid that the two together, after two hours' time, were enabled to obtain her consent to let Dr. Gibson operate. If, then, there is this difficulty with an intelligent woman of the better class, how are we to manage the many ignorant and obstinate women who are the subjects, through poverty in childhood, of pelvic deformity? As a moral question, simply, and one of fair dealing to the unborn but viable child, there is no doubt that gastro-hysterotomy is the proper alternative; but we have to consider two lives, and weigh the value and prospects of life of the two respectively. It is but seldom that the case of the woman comes under the observation of a competent accoucheur at a proper time to make her recovery under the knife very promising, and in this event few men will prefer it for the sake of saving the child, when craniotomy gives a fair and reasonable hope of preserving the mother. In cases of pelvic deformity, where the patient can be operated upon very early, I believe that craniotomy should be rejected for the sake of the fetus, as there is a strong hope of being able to save three out of four of both. There are those in the profession who think it morally wrong ever to destroy the fetus, and who, if not permitted to perform the Cesarean section, will wait until its death, before perforating. I believe this to be equally wrong and dangerous to the mother, as in some instances the fetus may live four and five days after *decided* labor has set in, and the mother may die soon after the child is removed, as I have known to occur in this city. Although it is rare for the fetus to live even four days, I have seen craniotomy performed on a living child at the end of this period, in a woman whose labor was still very severe. The fetal heart beat 145 just before its death, and with very decided strength. The conjugate measured $2\frac{4}{12}$ inches, and the woman made a rapid recovery. Had the Cesarean operation been performed, as was proposed, there would have been but a very faint hope of her recovery. In one case in the United States, under the same circumstances, the child was saved, to grow up, but the mother perished; the latest operation in our record, to save both mother and child, was after three days' labor. In the British tables is one where both were preserved after "fully six days." The woman was affected with hard cancer of the cervix. Under irregular uterine action, the fetus has lived still longer, but with a sound uterus and strong contractions, six days would be unprecedentedly long. The writer on one occasion auscultated a case for four very prominent old accoucheurs, all now deceased, who desired the aid of young ears, and counted the feble pulsations of a fetal heart in the uterus of a young German primipara, then nearly dead from exhaustion after five days' labor. She was delivered, as I learned afterward, of a dead fetus, and died the day following.

Now what are we to do in cases of moderately contracted pelves like this? The opponent of craniotomy recommends either the Cesarean section, or awaiting the death of the fetus, whilst the decided advocate of the Cesarean section favors the early use of the knife, in order to save, if possible, the mother and child. One would limit gastro-hysterotomy, and perform it only in cases of extreme pelvic deformity; another would encourage the use of the knife for the saving of the fetus in all cases where it is in danger of death. Who is to decide where there are such adverse views?

There is one class of patients, in whom we ought to hesitate but little in deciding against craniotomy and in favor of the Cesarean section, provided we are consulted in good season. A woman having a pelvis deformed by rickets, barely escapes with her life in a first labor, by the destruction of her infant. Granted that this is the correct method of delivery in a primipara, where practicable, and where not too dangerous to the life of the mother, what are we to do if she again becomes pregnant? She has full knowledge of her deformity, and has been warned of the dangers to arise from a second delivery; and with this understanding, again presents herself pregnant, and, perhaps, in labor. Are we to go on destroying one fetus after another for such women; or, where are we to decline, and claim that they should submit to the Cesarean section? Dr. Meigs told Mrs. Reybold, after the second craniotomy, that if she again became pregnant he would not destroy the child: she changed her accoucheur for the third labor, but fortunately fared no better, as Dr. Nancrede was equally opposed to craniotomy, and succeeded in persuading her to submit to the knife.

The late Dr. Parry had a similar experience with a rachitic dwarf, and delivered her of the second of two illegitimate infants, after long and tedious efforts. He decided, in the event of a third pregnancy, to perform the Cesarean operation; but she put herself under the care of a midwife, and perished from the third craniotomy, performed *in extremis*, on a putrid fetus, by another accoucheur. This woman, by having a different attendant at each labor, managed to obtain craniotomy, and avoid the use of the knife—a not uncommon practice with women who have been faithfully warned not to become again impregnated. There should be an understanding among the profession that such subjects are not to be delivered over and over again by craniotomy; if they will continue to beget, let them submit to the Porro operation, or the Cesarean section, with the wire uterine sutures, and ligation of the Fallopian tubes, as in the Toledo case. No woman has a right to expect that an accoucheur shall continue to destroy fetus after fetus for her, that she may indulge her sexual appetite, and escape the risk necessary to save her offspring alive. She should be taught that this destruction under such circumstances is infanticide.

The general practice of the United States has favored the destruction of the fetus, wherever practicable, in pelvic deformities, under the belief that this was safer for the mother than the Cesarean operation. Where the abdominal section has been made, it was generally the last hope, and done because the efforts to deliver had failed. Few know the capabilities of the operation, and many perish under craniotomy that might be saved if operated upon in good season by the knife. My own belief is, that in time the Cesarean operation will be much more frequently performed than it has been, and with much better results, and that craniotomy will correspondingly diminish in favor as an elective expedient.

329 S. 12TH STREET, PHILADELPHIA, JAN. 21ST, 1881.

RUPTURE OF THE UTERUS.

BY

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RUPTURE of the uterus is one of the most dangerous accidents to which the female in the puerperal state is liable; and one from which a recovery is hardly to be expected, either of the mother or of the child.

It is in the latter months of pregnancy, and especially during the second stage of labor, that rupture most frequently takes place; still we must not overlook the fact that it has occurred quite early in the period of gestation; one case being reported by "M. Baudelocque, in Burns' Midwifery, from the practice of Choppart, as having happened in the second month," while another is reported as early as the tenth week in the *Rev. Méd.*, 1825, page 155." Such cases are, however, very rare; but still they prove that (as Burns says) rupture may take place at any period of gestation.

It is, however, in the last months of pregnancy, and during the period of labor, that our attention is especially called to this subject; and in this article I shall report ninety-eight (98) cases which I have myself carefully collected, together with statistics of four hundred and seventeen cases previously reported by Dr. J. D. Trask, in the *American Journal of Medical Sciences*, for January and April, 1848, and July, 1856.

I will first present, in a tabulated form, the cases which I have myself collected from medical journals and other sources, including a few cases which have never been published.

Cases.	Reference, Author, etc.	Age.	Pregnancy.	Former Labor.	Time of Pregnancy.	Examination.	Labor Pains at Time of Rupture.	Time of Labor at which Rupture occurred.	Situation of the Child after Rupture.	Method of Delivery.	Position and Direction of Rent, Size, etc.	Cause.	Result		Time of Recovery or Death.
													Child.	Mother.	
1	Dr. Byrne, Rank, Abst., Vol. I., "62."	40.......	4th	Normal..	Term ..	Pelvis roomy, child hydrocephalus.	Ceased. ..	Not given..	Abdominal cav.	Craniotomy.	Anterior tr'sverse	Hydrocephalus.	D.	R.	37 days
2	M. Shillito, Burns' Midwifery.	Not given	Not given	Normal..	7th mo.	Os uteri gone, and an opening into the abdominal cavity.	Not given..	14th day ..	Abdominal cav.	Version.	Anterior ..	Unknown.	D.	D.	25 days.
3	Baumann, Rank, Abst. Vol. I., 1865.	35.......	4th	Normal..	Term ..	Rupture discovered; hand passed into abdominal cavity; intestines in uterus.	Strong....	Not given.	Abdominal cav.	Version.	Longitudinal, 4 in. long.	None recognized.	Not given	R.	6 weeks.
4	Dr. McKinley Rank, Abst. Vol. II., 1861	37.......	1st.	....	4th mo.	None made; patient died suddenly at night.	Resembling colic.	Not given..	Project'g through into abdominal cavity.	Autopsy.	Rent across fundus trans. 4¼ and 3½ in. in anter. post. dir.	None given	D	D.	Immediate.
5	Medical Facts Vol. -, page 171.	Not given	Not given	Normal..	4th mo.	Double uterus; one apartment of which burst.	Natural..	4th hour....	Ovum entire in abdominal cav.	Autopsy.	Not given..	Unknown..	D.	D.	Immediate.
6	Dr. Drake, Burns' Midwifery.	35..	2d.......	Natural	4th mo.	Not given.	Not given ..	Not given..	Abdominal cav.	Suppuration at the umbilicus.	Not given.	Unknown..	D.	R.	Unknown.
7	Dr. Edmundson, Rank, Abst., Vol. II., 1867.	40.......	6th	Normal..	Term...	Everything apparently all right.	Strong. ...	6th hour ...	Not given	Craniotomy.	Not stated.	Unknown..	Not given	R.	1 month
8	Dr. Jeffray. Burns' Midwifery.	Unknown	Unknown	Normal..	3d mo..	None made....	Natural...	Unknown..	Abdominal cav.	None.....	Not known	Fall	Fetus carried by patient for twenty years		
9	Dr. Warren, Rank, Abst. Vol. I., 1862.	40.......	Not given	Craniotomy 13 months before.	Term...	Small pelvis at superior strait.	Severe, and then disappear'g	Early	Abdominal cav.	Turning and craniotomy	Ant. A large enough to allow the hand to pass	Deformed pelvis.	D.	R.	1 month.

	Tom. X V., page 321.								nal cav.	caped by gangrene of abdominal wall					
11	Annals of Medicine, Vol. II. and IV.	40	5th	Normal	Early	None made	Natural	Not given	Abdominal cav.	By an abscess burst'g externally.	Not given	Kick	D.	R.	Not stated.
12	Rank, Abst., Vol. I., 1866.	46	11th	Quick & easy.	Term.	Vagina full of clots; head receded; os fully dilated; pelvis roomy.	Ceased.	Early	Protrud'g into the abdominal cav.	Version	Trans. in post. wall just above neck.	Unknown	D.	R.	In short time.
13	Rank, Abst., Vol. II., 1866	39.	7th	Normal	Term	Rent extending from os int. to within ½ in. of the Fallopian tube, then for ward and upward to within 1 in. of fundas.	Not at all marked as rupture took place without notice.	Not given	Abdominal cav.	Gastrotomy.	Rent gaping on left side ant.	Fatty degeneration.	D.	D	6 hours.
14	Omitted.	30	Not given	Not stated.	Term	Cross birth; left foot down; feet hooked over the edge of the uterus.	Severe and violent.	Not stated	Protrud'g into abdominal cavity.	Autopsy	Ant. and upper part of body.	Turning	D.	D.	In very short time
15	Rank, Abst., Vol. II., 1866	28	2d	Difficult	10th mo	Cross birth; head right; face front; large amount of liq. amnii.	At first normal, then increasing.	Not given	Remained in uterus, placenta in abdominal cavity.	Version	On right post. wall of neck, body, and vagina.	Turning; size of head; thin uterine tissue.	D.	D.	Five days after rupture.
16	Guillerin.	30	Not given	Easy	6th mo.	Not stated	Not given	Not given	Abdominal cav.	Subsequently expelled by the anus.	Unknown	Fall	D.	R.	Not stated.
17	Rank, Abst., Vol. II., 1866	29	3d	Forceps used.	Premature.	Great projection of the promontory of the sacrum; conjugate diameter, $2\frac{3}{4}''$; first position.	Severe	Early	Remained in uterus.	Version and cephalotripsy.	5 inch. long extending up from external os.	Turning and promontory of sacrum.	D.	D.	Ten hours after being delivered.
18	Rank, Abst., Vol. II., 1866	37	9th	Normal	Term	Child's head on perineum; by pressure receding into abdominal cavity.	At first normal, then burning and lancinating, and finally ceased.	24 hours	Abdominal cavity with placenta.	Gastrotomy.	In fundus from ant. to post. wall.	Unknown	D.	R.	11 days subsequently becoming again pregnant, and giving birth to a healthy child.

Cases.	Reference, Author, etc.	Age.	Pregnancy.	Former Labor.	Time of Pregnancy.	Examination.	Labor Pains at Time of Rupture.	Time of Labor at which Rupture occurred.	Situation of the Child after Rupture.	Method of Delivery.	Position and Direction of Rent, Size, etc.	Cause.	Result.		Time of Recovery or Death.
													Child.	Mother.	
19	Dr. Cox, Rank Abst., Vol. I., 1866.	Not given	6th	Normal.	Term...	First position; os fully dilated; later, vagina full of clots; head above pubis; and large.	At first quite powerful during one of which rup. took place then pains ceased.	4 hours ...	Protrud'g in abdominal cavity.	Craniotomy.	Rent anter. little to left and extending into body of uterus and vagina.	Hydrocephalus.	D.	Slow R.	Not given.
20	Dr. Dyer, Brit. Med. Jour., Vol. II., 1866	37........	4th	Natural..	Term...	First position; later, head receded; felt through abd. walls; uterus firmly contracted; empty; prominent sacrum.	At first quite trifling; later increasing under ergot in force.	Not given..	Abdominal cavity with placenta, etc.	Gastrotomy 4½ hours after rupture	Not given..	Thin uterine walls, and prominent sacrum.	D.	R.	4 w'ks. Afterwards becoming pregnant several times.
21	Braithwaite's Retrospect, Vol. XXV.	28........	4th	Forceps used, childr'n dying soon.	Term ..	Ant. post. diam. lessened of superior strait by great prominence of the sacrum.	Natural...	Not given.	Abdominal cavity with placenta.	Gastrotomy 14 hours after rupture	Rent trans. above junct. of body with cervix.	Deformed pelvis.	D.	Comp R.	3 months.
22	Lancet, Vol. II., 1869.	34...	4th	Forceps used.	Term...	First position; later, head receded, and intestines found in the vagina.	Strong and frequent, after rupture ceasing.	2 hours ...	Partially in abdominal cavity.	By forceps.	Rent from about 2 in. above os up to left and back.	Fall on left side just before labor.	D.	Good R.	Not stated.
23	Lancet, Vol. II., 1869.	17.... ...	Not given	Not stated.	7th mo	Os fully dilated, first position.	Severe. .	36 hours ..	In uterus	Version.	3 in. above os int.	Fright and softened uterine tissue.	D.	D.	8 days and 12 hours after rupture.
24	Lancet, Vol. II., 1876.	19	17th.. ...	Craniotomy.	Term .	First position, deformed pelvis, sacrum too prominent; later, head receded, intestines in the uterus	Strong. ..	Not given..	Partially in abdominal cavity.	Version, then perforation.	Rent on post. surface.	Deformed pelvis.	D.	Slow R.	....
25	Med. Times, Vol. I., 1863	36........	2d........	Craniotomy.	8 mo...	Small anter. poster. diam.; prominent sacrum; diam. of sup. strait, 2¾ inches; pelvic bones sharp.	Normal....	Unknown.	Partially in uterus and abdom. cavity.	Version and perforation	Transverse ant. post.	Small pelvis and sharpness of bones.	D.	D.	4 days after the rupture.

26	Med. Times, Vol. I., 1863	40........	6th	Long.....	Term ..	Narrow pelvis; considerable external hemorrhage.	Normal....	5th hour ...	Remained in uterus and placenta in abdominal cavity.	Version..	Large rent on post. surface.	Small pelvis.	D.	D.	9 days after
27	Med. Times, Vol. I., 1863	Not given	Not given	Unknown	7–8 mo.	Deformed pelvis.	Strong ...	Not stated.	Remained in uterus.	Version..	Trans. in ant. part.	Not determined.	D.	Not stated	Not stated.
28	Lancet, Vol. II., 1870.	30......	7th	Normal..	Term ..	Head receded, and could not be felt; os rapidly contracting.	Normal....	Not given..	Abdominal cavity.	Gastrotomy bet. 8 and 10 hours after rupture	Near fundus, and little to right side.	Degenerated uterine tissue	D.	R.	Not given.
29	Lancet, Vol. I., 1867.	Not given	6th	Normal..	8 mo...	Child born at time of rupt.; adherent placenta; intestines in uterus.	Excessive..	Early......	Born at time of rupture	Natural..	Rent trans. in post. wall.	Not given..	D.	D.	4–5 days after rupture.
30	Lancet, Vol. II., 1870.	33.......	10th	Normal..	7th mo.	No dilatation of os after two days.	Strong.....	Not given..	Not given	Not stated.	Rent post. 3 in. long.	Cancer of uterus.	D.	D.	In 14 days.
31	Med. Times, Vol. II. 1872	29	Not given	Normal.	7–8 mo.	Not seen by a doctor until four days after the rupture.	Not noticeable.	Unknown..	Abdominal cavity.	Gastrotomy.	Not stated.	Unknown..	D.	Good R	Not given.
32	Med. Times, Vol. II. 1872	40........	11th.....	Normal.	Term ..	First position; head on perineum at time of rupture then receding.	Strong and rather frequent.	Early	In uterus	Autopsy 23 hours after death.	Rent 4 inch. long at left inf. aspect.	Degenerated condition of uterus.	D.	D.	In 15 min. after rupture.
33	Ramsbotham	40........	3d........	Normal.	7th mo.	Prominent sacrum	Strong....	Early.....	Not given	Not stated.	Rent from side to side oppos. top of sacrum.	Premature labor.	D.	D.	1 hour after rupture.
34	Ramsbotham	30.......	7th.....	Normal..	Not giv.	Not given................	Quite severe.	Not given..	Abdominal cavity.	Died undelivered.	Rent from cervix almost to fundus on right side	Hydrocephalus.	D.	D.	Undelivered.
35	Ramsbotham	Not given	4th.......	Slow and lingering.	Term ..	Not stated.....	Excessive..	Latter part	Not stated.	Forceps tried; perforation.	Not given..	Protracted labor.	D.	D.	In 24 hours.
36	Ramsbotham	....	Multip...	Normal..	Term ..	Contracted pelvis	Not given..	Not given..	Abdominal cavity.	Version..	Not given..	Unknown..	D.	D.	In 72 hours after rupture, no autopsy.

Cases.	Reference, Author, etc.	Age.	Pregnancy.	Former Labor.	Time of Pregnancy.	Examination.	Labor Pains at Time of Rupture.	Time of Labor at which Rupture occurred.	Situation of the Child after Rupture.	Method of Delivery.	Position and Direction of Rent, Size, etc.	Cause.	Result.		Time of Recovery or Death.
													Child.	Mother.	
37	Ramsbotham	40	7th	Difficult; still births.	Term	Deformed pelvis	Quite str'ng	Early	Not stated.	Perforation.	Rent in ant. part of body lateral, and extending almost from side to side.	Small pelvis.	D.	D.	Soon after delivery.
38	Dr. Crighton.	Not given	1st	1st	Term	Rupture, not diagnosed; no pelvic deformity.	Natural	Early	Not given	Not delivered.	Not given.	Ergot	D.	D.	Very soon, 36 hours after.
39	Ramsbotham	Not given	2d	Normal	Term	Deformed pelvis; small ant. post. diam. 2½ in.	Natural	Not given	Abdominal cavity.	Turning and perforation	Large rent in post. wall.	Deformed pelvis.	D.	D.	In 12 hours; autopsy.
40	Ramsbotham	35	Multip.	Normal	Term	Arm presenting.	Normal	Unknown.	In uterus	Could not turn, so child was decapitated.	Rent in post. wall 6 in. long.	Unknown.	D.	R.	Not stated.
41	Ramsbotham	Not given	Multip.	Normal	4th mo.	Not stated	Not given.	Quite early	Ovum entire in abdominal cav.	Delivered at autopsy.	Rent on left side of uterus.	Unknown.	D.	D.	Very soon.
42	Lancet, Vol. I., 1860.	41	7th	Still born	Term	On seventh day nothing could be felt of the child; pelvis normal.	Not characteristic.	3d hour.	Abdominal cavity with membranes intact.	Membra. broken, child delivered by turning.	Rent from right cornu obliquely through body and cervix into vagina.	No disease of uterus	D.	D.	11 days after rupture; autopsy.
43	Rank, Abst., Vol. I., 1867	45	5th	Normal	Term	First position; later, uterus contracted firmly.	Strong	Middle	Abdominal cavity.	Forceps could not be used; not delivered	Rent in ant. part of body.	Contusion with forceps	D.	D.	Very soon; autopsy.

44	Rank, Abst., Vol. I., 1867.	38	12th......	Normal..	Term .	None given......	Slight.....	Not given..	Abdominal cavity.	Not given	Rent from right cornu down to left side of cervix.	Fatty degeneration of uterine tissue.	D.	D.	8 hours after rupture; autopsy.
45	Brit. and For. Med. Chir. Rev. Vol. I., 1863.	40	Multip...	Tedious..	Term...	Contracted pelvis; considerable hemorrhage.	No pains for three days before delivery.	Not known.	In uterus.	Perforation and cephalotripsy.	Ant. and post. in muscular structure of uterus.	Small pelvis.	D.	D.	4th day after delivery; autopsy.
46	Rank, Abst., Vol. I., 1867.	34........	14th......	Normal..	8 mos..	Early, head on perineum; later, it went above sup. strait; os fully dilated.	Quite severe.	12th hour ..	Partially in uterus.	Version..	Longitudinal 6 in. long on post. and right side even into vagina.	Unknown ..	D.	D.	3½ days after delivery; autopsy.
47	Brit. and For. Med. Chir. Rev. Vol. I., 1863.	33........	Multip...	Natural..	Term...	Obliquely contracted pelvis.	Not given..	Not stated.	In uterus.	3 unsuccessful attem'ts with forceps, then perforation and cephalotripsy.	Small opening post. into Douglas' sac.	Small pelvis.	D.	D.	25 minutes; autopsy.
48	Lancet, Vol. I., 1868.	Not given	3d........	Easy.....	Term ..	Not given...................	Natural....	Only few hours in labor.	In uterus.	Not stated.	Trans. 4 in. long, laterally and near fundus.	Thinned and weakened walls muscular degeneration.	Not stated.	Not stated.	....
49	Med. Times, Vol. I., 1868.	42........	10th......	Normal..	Term...	None given................	Not well marked.	Not given..	In uterus.	Turning..	Post. wall of uterus ruptured.	Unknown ..	D.	D.	Not given.
50	Dr. Barnes...	Not given	Not given	Normal..	Term. .	Intestines in the uterus; triplets.	Not given .	Not given..	All three and the placenta in abdominal cavity.	Not given	Not given..	Excessive child bearing.	D.	R.	Not given.
51	Lancet. Vol. I., 1863.	36..... ..	9th.......	Easy.. .	Term ..	Flooding; uterus empty; hand passed into abdominal cavity; feeling kidneys in their position; hydrocephalus.	Normal....	Early......	Abdominal cavity.	Version..	Post. from cervix to fundus.	Hydrocephalus.	D.	D.	6 days after

Cases.	Reference, Author, etc.	Age.	Pregnancy.	Former Labor.	Time of Pregnancy.	Examination.	Labor Pains at Time of Rupture.	Time of Labor at which Rupture occurred.	Situation of the Child after Rupture.	Method of Delivery.	Position and Direction of Rent, Size, etc.	Cause.	Result.		Time of Recovery or Death.
													Child.	Mother.	
52	Amer. Jour. of Med. Sci., Vol. II., 1856.	40	4th	Still born and bad confinements.	Term	Projection of prom. of sacrum; os fully dilated; hydrocephalus.	Strong	Early	Abdominal cavity with placenta.	Forceps were tried, but delivered at autopsy.	Trans. at junct. of neck and body.	Hydrocephalus and small ant. post. diam.	D.	D.	Not given.
53	Amer. Jour. of Med. Sci., Vol. I. 1857.	25	4th.	Normal.	Term	Os fully dilated; vertex high up; head receded; pelvis small.	Not given.	2d day	Abdominal cavity.	Gastrotomy.	Ant. part of fundus uterus thin.	Thin uterine tissue; deformed pelvis.	Not given.	R.	Not given.
54	Dublin Jour. of Med Sci., Vol. XXIV. 1857.	38	3d.	Natural, 9 hours long.	Term	Not given.	Severe	38 hours.	In uterus.	Perforation and turning.	Rent oblique on right side of fundus ant. 3 in long.	Fall	D.	D.	In 14 days.
55	Dublin Hospital Gaz., Vol. I., 1858.	30	2d.	First 72 hours long; still born.	Term	Uterus full of intestines; adherent placenta; short cord; liver also in uterus.	Very painful and strong.	36 hours	In uterus.	Version.	Large rent.	Unknown	Not giv.	Not giv.	Not given.
56	Dublin Hospital Gaz., Vol. V., 1858.	30	Not stated.	Not stated.	Term	Os relaxed, nothing could be felt, but at last found high up.	Normal	3d hour	Not stated.	Version	Trans. rent in lower and ant. part of uterus going into vagina.	Soft and thin state of uterus.	D.	D.	Quite soon; autopsy.
57	Amer. Jour. Med. Sci., Vol. I., 1861.	28	Not given	Normal	6 mos.	Not given; died suddenly from hemorrhage.	Colic like.	Very soon.	Abdominal cavity.	Autopsy.	Trans. rent 2 in. long in fundus on post. part.	Fall	D.	D.	Very soon

58	N. Y. Trans., 1861.	35-36	Multip	Normal	Term	Head engaged	Natural	8-10 hours	Head remained fixed in pelvis, while extremities were in abdominal cavity.	Died undelivered.	Rent post. and longitudinal.	Violent uterine action.	D.	D.	Almost immediately
59	N. Y. Trans., 1861.	25	2d	Severe, still born.	Term	Normal	Severe	6 hours	Abdominal cavity with placenta.	Autopsy	Rent on right side of body and neck 3-4 inches long.	Ergot	D.	D.	Not given.
60	N. Y. Trans., 1861.	36	5th	Tedious	Term	None given	Not noticeable.	3d hour	In uterus, placenta in abdominal cavity.	Turning and then craniotomy, 11 pounds.	Rent on post. part of neck and vagina.	Large child	D.	D.	9 days after
61	N. Y. Trans., 1861.	37	10th	Normal	Term	Not stated	Severe	Not given	In uterus.	Forceps 12 lbs.	Rent, post. part of body, neck and vagina.	Large child	Not giv.	D.	40 hours after delivery.
62	Amer. Jour. Med. Science. Vol. I., 1862.	31	4th	Difficult; dead children	Term	Ant, post. diam. of sup. strait small; first position, head on pubes.	Violent and almost continuous.	Not given	In uterus, placenta in abdominal cavity.	After trying forceps; turning.	Rent on right side of uterus.	Deformity of pelvis.	Not giv.	D.	52 hours after.
63	Chicago Med. Jour., Dec. 1862.	36	5th	Severe and prolonged.	Term.	Head at first on perineum, then receded.	Normal	8 hours	In uterus.	Cesarean operation.	Not given	Unknown	Not giv.	D.	7 days after
64	Dr. Hicks, Amer. Jour. Med. Sci., Jan., 1860.	Not given	4th	Normal	Term	Laceration felt to begin in cervix.	Normal	Not given	In uterus.	Natural	Beginning in cervix and going up left side.	Unknown.	Not giv.	Not giv.	Not reported.
65	Dr. Hicks' Amer. Jour. Med. Sci., Jan., 1860.	36	4th	Normal	Term	Not stated	Moderate	Not stated.	Abdominal cav.	Version	Right side of body and cervix 7 in. long.	Unknown	D.	Not giv.	Not stated.

CASES.	REFERENCE, AUTHOR, ETC.	AGE.	PREGNANCY.	FORMER LABOR.	TIME OF PREGNANCY.	EXAMINATION.	LABOR PAINS AT TIME OF RUPTURE.	TIME OF LABOR AT WHICH RUPTURE OCCURRED.	SITUATION OF THE CHILD AFTER RUPTURE.	METHOD OF DELIVERY.	POSITION AND DIRECTION OF RENT, SIZE, ETC.	CAUSE.	RESULT.		TIME OF RECOVERY OR DEATH.
													CHILD.	MOTHER.	
66	Dr. Hicks, Amer. Jour Med. Sci. Jan., 1860.	34.	Not given	Natural.	Not giv.	Prominent sacrum; first position.	Natural.	Not stated.	Abdominal cav.	Autopsy.	Not given.	Unknown.	D.	D.	Not given; autopsy.
67	Med. and Surgical Mon'ly March, 1866.	27	4th	Difficult; forceps used, still born.	Term	Not reported	Natural	Early	Abdominal cavity with placenta.	Gastrotomy 2½ hours after rupture	Not stated.	Unknown.	D.	R.	In few w'ks, menstruation returned in time.
68	Amer. Jour. Med. Sci., Vol. II., 1866	33	8th	Difficult; three still born.	Term	Os dilating; head high up; prominence of os pubis; later, head receded.	Not frequent but regular.	3-4 hours.	In uterus.	Version.	Softened condition of uterus from child bearing.	Unknown.	D.	D.	In 36 hours.
69	Trans. of Obst. Society of London, Vol. II. 1869.	46.	16th.	Natural; easy.	7th mo.	Not reported	Normal	2 days.	Abdominal cavity with placenta.	Version.	Unknown.	Muscular exertion.	D.	R.	In 6 weeks.
70	Lancet, Vol. I., 1867; Dr. Dunn.	Not given	Not given	Normal.	Term	First position, hydrocephalus.	Normal	Not given.	Abdominal cav.	Gastrotomy.	Not given.	Hydrocephalus.	Not rep.	D.	Very few hours.
71	Amer. Jour. of Med. Sci., Vol. I., 1876.	35	6th	Normal.	Term	Pelvis normal in size, head at superior strait.	Natural.	7-8 hours.	Abdominal cav. with placenta.	Version, and perforation	Trans. on ant. surface, 6-7 in. long.	Unknown.	D.	D.	60 hours after being delivered.
72	Dublin Jour. of Med. Sci., Vol. XXXVI. 1863.	30	5th	Easy	Term	First position	Natural	2½ hours.	In uterus.	Craniotomy.	Rent on right side 3 in. long.	Unknown.	D.	D.	6 hours after being delivered.
73	Dublin Jour. of Med. Sci., Vol. XLV.	38	3d	Difficult.	Term	Small anter. poster. diam. of sup. strait only 3 in.; trans. 5 in.	Natural	Early	Not given	Craniotomy.	Not given.	Small pelvis.	D.	Not giv.	Not reported.
74	Dublin Jour. Med. Sci., Vol. LXIII.	35	14th	Natural	Term	First position; later, head receded, and finally was out of reach.	Gradually decreasing.	Not given.	Abdominal cav.	Removed at autopsy.	Rent post down to junction of vagina	Uterine tissue soft and fatty	D.	D.	Soon after rupture; autopsy.

75	Lancet, Vol. II., 1860.	36	14th	Some trouble.	Term	First position; pelvis normal; later, head receded.	Strong	6 hours	Abdominal cav.	Removed at autopsy.	Rent down post. wall from top to bottom	Uterine tissue soft & flabby.	D.	D.	Soon died; autopsy.
76	Lancet, Vol. II., 1860.	Not given	6th	Easy	Term	Head and foot down on perineum; later, the presenting part receded.	Strong and frequent.	6 hours	Fetus and placenta outside of uterus and under peritoneum.	Removed at autopsy.	Rent post. running up from the cervix	Fall and thin state of the uterus.	D.	D.	Soon died; autopsy.
77	Lancet, Vol. I., 1873.		5th	Not stated.	Term	Uterus full of intestines after birth of the child.	Not at all marked.	After birth of the child rupture first noticed.	Child born; plac. in abdom. cavity.	Natural.	Not given.	Not given.	Living.	R.	After some time.
78	Lancet, Vol. II., 1877.		9th	Normal	Term	Breech presentation.	Strong	Not given	In uterus.	Forceps used.	Rent trans little above os.	Injury few months before.	Living.	D.	3 days after being delivered; autopsy.
79	British Med. Jour. Vol. I., 1864.		4th	Normal	Term	Child nearly born when head receded; after removal of child intestines came down.	Entirely gone.	Latter part of labor	Not given	Version.	Rent post. on left side from fundus to cervix.	Unknown	Not giv.	R.	3 weeks after.
80	British Med. Jour. Vol. I., 1864.		4th.	Easy	Term	Natural	Normal	Not given	In uterus.	Natural	Post. in the middle line in body, cervix and vagina.	Unknown	Living.	D.	In 31 hours; autopsy.
81	British Med. Jour. Vol. II., 1870.	30	Not given	Normal	Term	First position; later, presenting part receded.	Strong and frequent.	Early	Partially in uterus.	Version.	Rent in ant. part, through fundus & os into the bladder.	Unknown	Not giv	R.	In 3 weeks.
82	Med. Times and Gazette, Vol. I., 1859.	26	1st		Term	All natural	Normal	At close of labor.	Born	Natural	Rent on right side post.	Unknown	L.	R.	In 3 hours after delivery; autopsy.
83	Dr. Hecks	28	Unknown	Natural.	Term	First position	Strong	4th hour	In uterus.	Natural	Rent on left side of body.	Not given	D.	D.	In 36 hours.
84	London Med. Gazette, Vol. X.	28	6th	Not given	Term	Os dilating; first position; small pelvis; large head.	Infrequent & not very strong.	Unknown	Born	Born	Rent in post. wall near fundus, not extend'g into uterine cav.	As above	L.	D.	6 hours after delivery; autopsy.

Cases.	Reference, Author, etc.	Age.	Pregnancy.	Former Labor	Time of Pregnancy.	Examination.	Labor Pains at Time of Rupture.	Time of Labor at which Rupture occurred.	Situation of the Child after Rupture.	Method of Delivery.	Position and Direction of Rent, Size, etc.	Cause.	Result.		Time of Recovery or Death.
													Child.	Mother.	
85	Reports of Philadelp'a Hospital.	22........	1st	....	Term ..	Vertex, left and back head impacted; os scarcely dilated.	Strong. ..	3½ hours..	In uterus.	Forceps..	Rent post and left.	Hydrocephalus.	D.	D.	14 hours after delivery; autopsy.
86	Reports of Philadelp'a Hospital.	43........	2d........	Easy. .	Term ..	Trans. position; later, the intestines came down.	Violent	9 hours 35 minutes.	In uterus.	Version.	Rent in ant. wall.	Unknown.	D.	R.	Sitting up in 4 w'ks.
87	Dr. Parry, Amer. Jour. Obst.	23...... .	Not given	Not given	Term ..	Head present.; slightly receding; os partially dilated; ant. post. deformity of sup. strait 2⅛.in.	At first natural, then violent, then absent.	36 hours...	Child and placenta in abdominal cavity.	Undelivered.	Ant. wall just above bladder.	Deformity of pelvis; thin uterine tissue.	D.	D.	48 hours after beginning of labor; autopsy.
88	Dr. Parry Amer. Jour. Obst.	27........	1st. .. .	....	Term ..	Head present.; occiput right and back.	Strong ...	72 hours...	In uterus	Craniotomy.	Rent post 5 inches long.	Unknown.	D.	R.	Not given.
89	Dr. R. G. Curtin, 332 So. 17th Street, Philadelp'a	35.......	6th.......	Easy.....	Term .	Natural at first; later, nothing could be felt of the child.	Ceased. ...	1 hour	Abdominal cav.	Version.	Rent in right wall T form, 6 inches by 3 inches.	None could be found.	D.	D.	As head was passing through the rupture.
90	Lancet, Vol. II., 1878.	....	Multip...	Not given	Term ..	Breech presentation; pelvis roomy.	Slight	Not given.	In uterus.	Bringing down breech.	Not given.	Unknown.	D.	D.	Very soon after delivery.
91	Lancet. Vol. II., 1878, Dr. Skinner.	23	2d........	Easy.....	3d mo..	Not stated................	Strong.....	Early ..	Partially in abdominal cavity.	Autopsy.	Rent ant., clear through uterine tissue.	Unknown.	D.	D.	In 2 hours; autopsy.
92	Dr. Hickenbotham, Lancet, Vol. II., 1878.	32........	Not given	....	9th mo.	Os not dilated...........	Normal....	At the beginning of labor.	In uterus.	Natural	Rent in post wall.	Unknown.	Not giv.	D.	Slow recovery
93	Dr. Badger, Amer. Jour. Med. Sci., October 18, 1879.	32–34.....	11th......	Natural..	Term...	Shoulder presentation; right arm protruding.	Strong....	40 hours....	In uterus.	Version	Trans. just above neck.	Unknown ..	D.	R.	Slowly.

94	Amer. Jour. Obst., May 1873; Dr. Lusk, reported by Dr. P. F. Mundé.	....	7th......	Not given	Term..	Breech presentation; pelvis large and roomy.	At first natural, then ceased.	Early.....	Partially escaped into abdominal cavity.	Version..	Rent ant. 2 in. above os externum and running tra'sversely.	Unknown..	Not giv.	D.	In 15 hours.
95	Dr. Hanks, Amer. Jour. Obst., Vol. X., page 271.	35........	5th	Normal..	Term...	Head in natural position, extension not having taken place.	Quite severe.	Not given..	In uterus; placenta in abdomin'l cav	Forceps..	Rent in post portion of uterus.	None given.	D.	D	44 hours after delivery.
96	Dr. Goodell, Amer. Jour. Obst., Vol. X.	About 30.	2d	Long labor and dead child.	Term...	Os dilating; membranes burst; cord prolapsed; head R. O. P.; later, uterus and vagina full of intestines; small pelvis.	At first quite strong so'n very feeble.	24 hours...	Abdominal cav.	Forceps, version, then craniotomy.	Rent from cervix to fundus.	Unknown..	D.	D.	9th day after delivery.
97	Dr. Ward, Amer. Jour. Obst.. Vol. XL., p. 586.	38......	13th......	Normal..	Term...	Breech presentation... ...	Quite str'ng	For some time.	Abdominal cavity.	Laparotomy.	Rent in ant. part of uterus 5 inches long; 2d rent triangular in shape.	Fatty state of the uterine tissue.	D.	D.	In 2½ days after rupture.
*98	Dr. Rose, Amer. Jour. Obst., Vol. XI.	32.......	3, 4, 5 and 6 labors.	Each time full term	....	....	....	....	....	....	....	....	....		....
†99	P. F Mundé, Amer. Jour. Obst., May, 1873.	36.......	4th.......	Natural; children dead; crania fractured.	Term...	Pelvis 2¾ inches	Very strong	12th hour..	Partly in abdom. cavity.	Version; craniot.; decap'n; removal of loose head in abd. cav. post mor	Posterior; transverse	Contracted pelvis.	D.	D.	8 hours.
100	P. F. Mundé, for L. L. Bradshaw, Amer. Jour. Obst., April, 1881.	33... ...	2d; first premature.	Natural..	Term...	Pelvis 2¾ inches........	Mild........	10th hour..	Partly in abdom. cavity.	Version; difficult extraction.	Anterior transv'se; right longitudinal.	Contracted pelvis.	D.	D.	2 days.

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* IRISHWOMAN.—When she had been in her third labor for 5 hours, the uterus suddenly ruptured; the doctor at once passed his hand through the rent into the abdominal cavity, and grasping the child (which had been dead for some time) by the foot, removed it per vaginam. The placenta, which was in the abdominal cavity, was also removed. Patient made a rapid and complete recovery. Little or no peritonitis followed the rupture.

FOURTH LABOR.—After being three or four hours in labor, the pains suddenly stopped, and the head receded. Dr. Rose, upon passing his hand into the uterus, again found a rupture, and delivered as before. The recovery was as complete as after the first rupture.

FIFTH LABOR.—In this the pains, after being quite active for about two hours, suddenly stopped, followed by some abdominal tenderness, and a feeling of faintness. She was told by the attending physician that her pains had only stopped for a little while, and would soon return. After waiting two days, and the pains not returning, Dr. Rose was sent for, and upon examination found the uterus again ruptured, and both child and placenta in the abdominal cavity. Delivery was effected as at the previous ruptures, with the exception that this time the passage of the child gave such pain it was found necessary to give chloroform. The child had been dead for several days. Rent transverse, and in the posterior part of the womb, feeling to the touch as though one-half of the womb had been cut off with a knife. None of the abdominal contents escaped through the rent. Patient was sitting up twelve days after the rupture.

SIXTH LABOR.—The sixth and last labor was also complicated by a rupture. In this labor, soon after the membrane had broken, and without any symptoms whatsoever, the uterus again ruptured, and the child escaped into the abdominal cavity, going high up under the ribs. Twenty minutes after feeling the child in its abnormal position, Dr. Rose saw the patient, and passing his hand through the rupture, was just able to reach the child's foot, and soon delivered it alive. Patient suffered no more than at an ordinary labor.

† Cases 99 and 100 were added subsequent to completion of statistics, and are therefore not included in the

Having now carefully presented these cases, our attention is next called to the

FREQUENCY OF RUPTURE OF THE UTERUS.

It is well known that rupture of the subvaginal portion of the neck is quite common; but it is only to ruptures of the body and the supravaginal portion of the neck that I especially invite attention. Statistics have been carefully made in regard to this subject; and we learn from those of Dr. Francis Ramsbotham, taken from the Royal Maternity Charity, of London, from 1820–1850 inclusive, embracing sixty-eight thousand four hundred and thirty-five labors, that among these, rupture of the uterus or of the vagina occurred in fourteen, or one in four thousand eight hundred and eighty-eight labors. After 1827, rupture of the uterus and the vagina were separated, and rupture of the uterus occurred only eight times in forty-eight thousand nine hundred and ninety-six cases, or one in six thousand one hundred and twenty-four.

Dr. Lehmann reports that, of seven thousand deliveries in the Maternity at Amsterdam, rupture occurred only in three cases, or one in two thousand three hundred and thirty-three, and that he had seen eight cases in private practice. In twelve thousand four hundred cases collected by Dr. Hicks, there were two cases of rupture and two cases in which a diagnosis was not made; this giving one case in six thousand two hundred, or, including the two of doubt, one case in three thousand one hundred. The last septennial report of the Lying-in Charity of Guy's Hospital gives eight thousand nine hundred and eighty-two cases of delivery by students. Of these there were two cases of rupture, or one in four thousand four hundred and ninety-one. In three septennial reports already published, there were twenty-two thousand four hundred and ninety-eight cases of delivery, of these there were five certain cases of rupture and five uncertain. In another report, there were twelve thousand three hundred and twenty cases with two cases of rupture, or one in six thousand one hundred and sixty. This gives a total of forty-three thousand eight hundred cases, with nine cases of rupture, or one in four thousand eight hundred and seventy-five. Now from the foregoing cases we arrive at the following:

Ramsbotham,	one	case in	6,124
Lehmann,	“	“	2,333
Hicks,	“	“	6,200
Guy's Reports,	“	“	4,875
Total,			19,532

Average, one case in 4,883. This being a little larger percentage than that given by Dr. Harris, of Philadelphia, his being one case in four thousand.

Thus it will be seen that rupture of the uterus is comparatively rare, still it is of such vital importance that we should always be on our guard and be prepared, if possible, to prevent the occurrence of such a dangerous complication.

What are the causes of rupture of the uterus? These are divided into predisposing and determining.

PREDISPOSING CAUSES.

In rupture of the uterus it is always supposed that there is more or less distention of that organ, and in consequence of this distention the uterine walls undergo certain modifications, such as softening, a decrease in thickness, increased elasticity, etc., all of which render the organ more liable to rupture when exposed to any sudden shock. Pregnancy is the essential pre disposing cause to rupture of the uterus; but there are many other circumstances and conditions, entirely absent in a normal pregnancy, that have a more immediate influence over the production of this accident, as, for instance:

(*a.*) An anomalous condition of the pelvis, such as pointed exostosis, or unusual sharpness of the promontory of the sacrum.

(*b.*) Diseases of the uterine walls, such as thinness, local atrophy, fatty degeneration, cicatrices from former Cesarean section, healed ruptures, old or recent inflammations, new growths, as fibroids, polypi, especially the interstitial and submucous, cancer, atresia of the os or cervix uteri, and placenta previa.

(*c.*) Predisposing causes due to the child, as hydrocephalus, and unnatural positions in the womb, by making constant pressure on some part of the uterus and so weakening it.

(*d.*) A large amount of liquor amnii.

(*e.*) Ergot or any expulsive agents.

(*f.*) Denman claims that the uterus may be worn through mechanically in long and severe labors, by pressure between the child's head and the bones of the pelvis.

Barnes thinks that one leading cause of rupture is the loss of relation between the strength of the muscular walls of the body and of the cervix. In most of his cases the cervix was not expanded, and the uterine wall gave way before the resistance offered. He has examined three cases and found no muscular alteration other than occurs in a natural pregnancy. He considers a dead child a chief cause of rupture because of the amount of its resiliency (*c*).

Dr. Bandl's report of thirty-two cases (thirteen by himself and nineteen from the reports of the Vienna Lying-in Charity) says, "In no case have I found that pathological condition in the uterine tissue which has been assigned as a predisposing cause, more particularly in multiparous women. Uterus was always thick, well contracted, and cervix thin." He thinks rupture always due to a disproportion. Of his thirty-two cases nineteen were of narrow pelvis, three of hydrocephalus, eight shoulder presentations, one prolapsed foot with the head, and one case no cause. He does not think pressure caused a rupture (*f*), as frequently sloughing occurred without rupture, and in one case both sloughing and rupture were present at different points. In regard to hydrocephalus as a cause, it is clearly shown by the reports of Dr. Keith that it is one of the principal causes. He collected seventy-four cases of congenital hydrocephalus, and in sixteen there was rupture of the uterus or more than twenty per cent of the whole number of births. There is also a difference in regard to the sex of the child, the male being normally somewhat larger than the female, would act as a predisposing cause; thus, in thirty-four cases reported by Collins, twenty-three were male and eleven female, while Dr. McKeon shows a greater disproportion in twenty cases, fifteen being males.

Dr. Lehmann believes that rupture cannot take place without some disease of the uterine tissue, unless it has been subjected to pressure and so injured. Dr. Radford's report of nineteen cases gives as the most frequent cause a small antero-posterior diameter of the superior strait. In referring to the able and concise paper of Dr. Trask, we find a report of four hundred and seventeen cases. In regard to the cause he says: "We frequently find a diseased condition of the uterus. In sixty-seven of his cases the condition of the uterus was reported. Of this number there were thirteen healthy, twenty softened, twenty-one thinned, one both thinned and softened, three at some points thinned and at others thickened, eight diseased, one thinned and brittle." The above cases, the doctor believes, were spontaneous; hence it seems that all spontaneous ruptures may depend on some disease of the uterine tissue. It is an undetermined point, as yet, whether the thinning and softening seen in many cases take place during parturition or the latter months of pregnancy. Trask thinks that alterations of structure doubtless take place in some instances prior to labor, from causes not well ascertained; and others during labor from long continued muscular exertion. Trask also gives other causes of rupture in the form of conditions obstructing the progress of the child in the following numbers:

Contraction of pelvis, ...	74
Hydrocephalus, ...	12
Rigidity of os uteri, ...	6
Obstructing bands in vagina, . . .	6
Enlarged ovary, ...	1
Total, ...	99

Of the ninety-eight cases which I have here presented, and all of which occurred since the publication of those of Dr. Trask, in 1856, I find the predisposing cause to be as follows:

(*a*.) Deformed pelvis occurred in fifteen cases, of these ten were small antero-posterior diameter of the superior strait, and the other five were simply mentioned as deformed pelvis, without specifying any particular kind of deformity. (See cases 9, 17, 20, 21, 24, 25, 26, 37, 39, 45, 47, 52, 53, 62, 73.) In cases twenty and fifty-three, there was thinning and softening of the uterine tissue in connection with the pelvic deformity.

(*b*.) Disease of the uterine tissue occurred in fourteen cases, of these softening and thinning of the uterine tissue in four cases; fatty degeneration in four cases; thin weak walls with a possibility of some degeneration, one case; disease of uterine tissue, one; cancer, one; follicular disease of cervix uteri, one; thinning with hydrocephalus, one. (See cases 15, 13, 23, 28, 30, 32, 44, 48, 56, 68, 75, 76, 87, 97.)

(*c.*) Hydrocephalus, ... 6

(See cases 1, 19, 34, 51, 70, 85.)

(*d.*) Traumatism, ... 18

(To be considered later), and in forty-five cases no cause whatsoever was given.

Determining causes. These are best divided into external or traumatic causes, and internal causes.

EXTERNAL OR TRAUMATIC CAUSES.

The uterus, like all other parts of the body, is liable to be injured at any time; but much more so during the pregnant state, and especially during the latter months of utero-gestation, when, from its increased size, it has ascended out of the cavity of the pelvis and is no longer protected by its osseous walls. Here it is subjected to various degrees of compression and contusion, all of which tend to weaken the uterine walls to a greater or less degree; but owing to the increased elasticity and mobility, the uterus generally escapes with little or no harm; still, occasionally the injury may be followed by disastrous consequences, as in the following ten cases from my own collection. Of these, rupture took place in six cases from a fall, in one case from a kick, in one case from muscular exertion, in one case from use of forceps. (See cases 8, 11, 16, 22, 54, 57, 43, 69, 76.) Case eight, the rupture took place at an early period of gestation, and the fetus was carried by the woman for twenty years. Rupture may not immediately follow the injury, but come at some future period, the accident causing an inflammation, followed by ulceration, and finally perforation. Rupture may occur from compression of the uterus by the abdominal muscles, as in sneezing, coughing, or vomiting, likewise when endeavoring to raise a heavy article (case 69). In fact, any movement which will violently compress the pregnant uterus between the vertebral column and the abdominal muscles, is liable to produce a rupture.

INTERNAL CAUSES.

(*a.*) Direct injury from instruments, etc.

(*b.*) Inordinate action of the uterus, particularly when arising from obstructions to the passage of the child.

(*c.*) Previous disease of the uterine walls, or deformities of the pelvis.

(*d.*) Malpositions of the child.

The uterine contraction is the sole determining cause; but for a rupture to take place, some of the preceding conditions must be present. In the cases I have presented I find nine caused by internal injury, as follows: Version, one (14); turning, complicated with a thin condition of the uterine walls and hydrocephalus, one (15); large number of children, one (50); protracted labor, one (35); ergot, two (38, 59); violent uterine action, one (58); large child, two (60, 61).

Spontaneous ruptures are very rare and hardly ever take place except at full term. Cases 4–82 should be considered as belonging to this class, as no cause whatsoever could be found to account for the rupture. As also the most remarkable case (No. 98), where four successive ruptures took place in the same patient with complete recovery after each.

SYMPTOMS.—As a rule, the signs of rupture of the uterus are easily made out, coming as they do so suddenly, and generally after or during a violent contraction of the uterus, or of the abdominal muscles. The symptoms are ushered in by the patient experiencing an exceedingly sharp, agonizing pain at or in the immediate vicinity of the rupture, which is accompanied by a tearing or snapping sound, in some instances loud enough to be audible to bystanders (cases 20–42). In case forty-two it is compared to snapping the thumb and finger. In case four, the pains resembled those of colic, while in other cases they are described as burning, lancinating, cramp-like, and in case fifty-one the pains were fixed, remaining across the umbilicus. These pains, which at the moment of rupture are so intense, immediately change in character to those of a dull ache, or a sense of numbness, and in some instances disappear altogether. While the majority of ruptures are characterized by these terrible pains, we must not overlook the fact that some ruptures occur without this symptom. In cases thirteen and eighty, there were no symptoms, while in others the symptoms were very feebly marked. Along with these pains, or immediately afterward, the patient becomes pale, the countenance assumes an expression of anxiety or fear, the pulse becomes small, wiry, irregular, fluttering, feeble, and very rapid, ranging from one hundred to a point that it can hardly be counted (case 7), fainting supervenes, and she passes into a state of syncope of a greater or less duration. Respiration is greatly increased, the surface becomes cold and is covered by by cold, profuse sweat. From this condition the patient may slowly return to consciousness in some cases, and make a complete recovery; in others she may live for a few hours or even days; but in the majority of cases their suffering is soon ended by death. Some patients, at the moment of rupture, scream out with the pain, and say they have experienced the sensation of "something giving way," or "something has broken," as in cases 9, 12, 20, 22, 32.

Vomiting of a dark substance like coffee grounds has been noticed in several cases (9, 12). Tympanites was observed in case 1. The abdomen becomes tender and very painful to the touch. If the rupture has occurred at the full period of utero-gestation, and the fetus has escaped into the abdominal cavity: we can, by external manipulations, feel the child in its abnormal position, and in some cases the soft, yielding, compressible, non-contracted uterus may be recognized.

At the time of rupture, blood may escape from the vulva (cases 20, 26, 69), but this is not generally the case, as it goes into the abdominal cavity. If the accident takes place during labor pains, it matters not how energetic they were before the rupture; they immediately disappear after its occurrence. It is, however, by the touch that the most conclusive signs are furnished. We are then able to detect any change in the position or volume of the uterus, or of the presenting part of the child. For instance, if we have been carefully watching a case of labor, and find everything normal, we would imply a natural labor; but if, on the other hand, the symptoms before mentioned suddenly appear, and by examination we found the presenting part had receded and was no longer acessible to the finger, and the cervix uteri had been drawn up, and the orifice had become only slightly dilated, even although we could not feel the rupture, we are perfectly right in suspecting one to have taken place. If we now attempt to pass the hand into the uterine cavity, we may find it empty, partially empty, or completely filled with intestines, which have escaped through the rupture. We can also examine the seat and extent of the laceration, and in many cases pass the hand completely into the abdominal cavity. At the time of the accident, the child, if alive, is felt to struggle violently; but death soon takes place, and the mother feels the child like a dead weight in her abdomen, and if death does not speedily take place, the fetus may become encysted and remain a harmless tenant for years. It may sometimes happen that neither the fetus nor placenta will pass into the abdominal cavity, and the severe symptoms may be referred to some other cause than the true one, and the mistake not be discovered till after death.

Dr. McClintock considers as a valuable symptom of laceration of the uterus or vagina a localized emphysematous state of the integuments covering the hypogastrium, its existence being detected by a stethoscope while searching for the fetal heart. This is not obvious to the hand, unless firm pressure be made. Dr. Byrne calls attention to a symptom which he has noticed several times, namely a spasmodic pain passing through the upper parts of the sternum and back to the spine. In regard to the character of the symptoms, they may vary from the most terrible to a point that they are not noticed. In referring again to the tables of Dr. Trask, I find the character of the labor given in one hundred and fifty-six cases, of these

46 or 29.5% were very severe.
39 or 25% were strong.
46 or 29.5% were moderate.
11 or 7% were feeble.
14 or 9% were tedious.

In fifty-five the pains ceased suddenly; in seventeen gradually.

In referring to my own cases, I find the character of labor given in thirty-five, of these

12 or 34.5% were very severe.
5 or 14.3% were strong.
6 or 17.1% were moderate.
8 or 23% were feeble.
4 or 11.1% had not a single symptom to foretell the coming rupture.

Merriam gives a case of rupture at six months, the woman being awakened at night by a sudden pain about her umbilicus; she had no return of the pain, but sank and soon died. Rupture at the fundus.

INCOMPLETE RUPTURE OF THE UTERUS.

Although the symptoms of complete rupture of the uterus are as a rule easily recognized, this is far from being the case in regard to incomplete rupture, for here only the mucous or the muscular coat is injured, while the peritoneum remains intact. We cannot make a sure diagnosis from external manipulations, while the internal examination only reveals a solution of continuity. The most frequent seat of partial laceration is near the cervical portion. None of the grave symptoms which are generally present in complete rupture are here noticed, while the labor pains continue with regularity and but slightly enfeebled. Dr. Hecker calls attention to the important fact that the pulse, as in complete rupture, becomes frequent and small. He also noticed in two cases (both died) the formation of a tumor in the anterior wall of the vagina extending backwards and downwards, caused by blood escaping into the areolar tissue between the bladder and the uterus; and also by the formation of an extra-peritonal and ante-uterine hematocele. This was not a cystocele, as the child was to high to press upon the bladder, and the catheter showed it to be empty (see case 84).

DIAGNOSIS.

The diagnosis of rupture of the uterus is easily made when many of the above symptoms are present, and is at once confirmed when the rupture is detected by vaginal examination. It is only during the early months of utero gestation that the diagnosis is at all difficult. Levut gives a case when it was mistaken for calculus and lithotomy was actually performed.

PROGNOSIS AND TERMINATION.

In regard to the prognosis of uterine rupture we must be guided by the situation and the extent of the lesion, and by the amount of inflammation or hemorrhage that supervenes. As a rule, however, the prognosis is very unfavorable, the accident almost always proving fatal to the child, while the mother seldom escapes.

In some cases the rupture is so extensive, and the shock so great, that death follows immediately or in a very few minutes (see cases 17, 14, 33, 34, 39, 32 44, 47, 59, 72, 82, 84, 90, 91, 94 and 97); but generally the patient survives the primary, acute symptoms, and lives from a few hours to days. Death is at last caused by a slow internal hemorrhage, or more likely by inflammation and suppuration of the peritoneum or pelvic tissues due to the presence of the fetus, membranes, liquor amnii or extravasated blood.

It is known that the greatest danger lies in the hemorrhage, and that it is this which is to be the most dreaded. As a rule, little if any blood makes its appearance externally; but on the contrary escapes abundantly into the peritoneal cavity (if that membrane be ruptured), and if not, into the sub-peritoneal tissue, when it will collect and form a hematocele. In these cases the blood becomes black and the tissues have all the appearance of being in a gangrenous condition (see case 32).

Again when the waters have escaped, the hemorrhage may take place into the uterine cavity, being prevented from escaping into the abdomen by the rupture contracting, or some part of the child filling the opening, and so retaining the blood within the uterus.

Still again, the uterus being relaxed, the hemorrhage will continue and escape directly from the vagina till it destroys the patient. In some cases there is little or no bleeding, the rupture being very suddenly followed by expulsion of the child, and the uterus at once violently and strongly contracting as in an ordinary labor. In some instances the intestines have protruded through the rupture to a greater or less extent. When this is the case, care should be taken that they are not strangulated by the contraction of the uterus; this is prevented by replacing them, and retaining the hand in the uterus till it has attained a firm contraction and the uterus is closed. I find ten cases reported in this paper that had a hernia of the intestines; of these seven recovered, two died, and of the other case (which was a hernia composed of intestines, omentum, and liver) it is not stated whether it recovered or not (see case 55).

In regard to recovery, the tables are not very encouraging.

In some cases they have survived gastrotomy, and in others a cyst has been formed for the fetus in the peritoneal cavity, and it has there remained a harmless tenant for years; or inflammation may set up, followed by suppuration, and the fetus be discharged at some future time intact or piecemeal. Dr. Percival gives a case where the "fetus was retained for twenty-two years, and then discharged by the rectum." Dr. Drake's case, where the uterus burst at four months, terminated by suppuration at the navel.

Dr. Miller "removed the child in a putrid state from the navel" (see cases 8, 11, 10, 16). Several tables have been made and statistics prepared, in regard to the recovery of these cases, and a few of these I will present: Dr. Byrne has taken the cases of Drs. Churchill, Sinclair, and Johnson, and one of his own, making in all ninety-eight; of these there were only eleven recoveries, or little less than one in nine. Dr. Radford has examined nineteen cases; of these there were three recoveries, or a little more than one in six. In the ninety-eight cases which I have collected, I find thirty-two recoveries, or one in every three cases. I find then, from the foregoing, that the average recovery is one in every five for these particular cases; but we must remember that art has very much to do in these cases, and therefore the proportion of recoveries is somewhat increased. I also find that in all these cases there were ten (10) of gastrotomy; of these seven (7) recovered and three (3) died. Of the undelivered cases there were twenty-two (22); of these four were saved and eighteen were lost. Of the four saved, rupture took place in one at the fourth month; one at the sixth month; one at the eighth month, and one is simply stated as being early (see cases 6, 10, 11, 16); but in all the cases the fetus remained a harmless tenant till its expulsion, as reported in the table. Of those cases delivered by different methods, there were fifty-six (56); of these eighteen were saved and thirty-eight died; and of the eighteen saved, eight (8) were delivered by version or turning, five (5) by craniotomy, two (2) by both turning and craniotomy, one (1) by the forceps and two (2) by the natural method. From the statistics of Dr. Trask we learn that of those delivered in any manner, thirty-seven in one hundred are saved, or little more than one-third, and of those undelivered or abandoned, twenty-seven in one hundred are saved, or little more than one-fourth. Art prolonged life in fatal cases from nine to twenty-two hours when death has taken place under forty-eight hours. By gastrotomy in twenty-five cases, eighteen saved, seven lost, or twenty-two per cent saved. Sixty-eight undelivered cases; of these eighteen saved, fifty lost, or thirty-eight per cent saved. Seventy-four cases by other modes of delivery; of these twenty-three saved, fifty one lost, or thirty-two and one-half per cent saved.

PATHOLOGICAL ANATOMY.

Any portion of the uterus is liable to become the seat of a rupture, this varying as to the time of labor, or the period of gestation, the cause, and the condition of the uterine tissue.

When the rupture takes place during gestation, it is nearly always in the fundus or its immediate vicinity, while on the contrary during labor the seat of rupture is in or about the neck, or the inferior portion of the body. Those parts of the uterus that are most liable to rupture are, as above stated, the fundus and neck; also the lateral portions of the body, and supra and intra vaginal portions of the neck.

When the accident is caused by an external injury or some disease of the uterus, the rent takes place ordinarily at the injured point.

This is not always the case in a diseased condition of the uterus, for under some conditions the alterations which have taken place in the uterine tissue are of such a nature that the walls, instead of being wakened, are in fact made stronger, and the rupture takes place at some point distant from the seat of the disease.

When the rupture is due to any irregularity or deformity of the bones of the pelvis, the rent will be found at a point nearest the deformity (case 25). As to the extent, form, and direction of the rupture, there are hardly two cases exactly alike. The extent may vary from a very small hole or opening (cases 37, 47) to one that involves the whole uterus and many of the surrounding structures (cases 61–80). In direction it may be transverse, longitudinal, oblique, or in the neck circular, or even zigzag. In case eighty-four it took a star-like form. If the rupture is due to previous disease, its presence can be easily detected. The margins seldom present anything but an irregular, rough, ecchymosed condition, and if the patient lives any time after the accident, signs of a violent inflammation, due to a foreign substance, will be detected in the peritoneum and all the pelvic viscera to a greater or less extent. The rupture may be complete or incomplete, the one involving the mucous or muscular coat or peritoneum alone, while the other involves both. The cervix is the most frequent seat of the rupture, because it is naturally the thinnest, and it receives all the force of the uterine contractions, and is more subjected to contusions from the surrounding osseous structures.

From the statistics of Dr. Trask, we find that, during pregnancy, the fundus and body were involved in seventeen cases, and cervix in eight. During labor, the cervix was involved in one hundred and ten cases, fundus in seventeen, and the body in seventy-one. Of these seventy-one cases, by far the greater part were ruptures of the anterior or posterior part, or the right or left side, and it is highly probable that in some of them the cervix was involved. In four cases the peritoneum was not ruptured (see case 76):

Transverse, ...	23.
Longitudinal, ...	21.
Oblique, ...	7.
Circular, ...	1.

Dr. Radford, in examining nineteen cases, found:

Longitudinal, ...	11.
Transverse, ...	3.
Oblique, ...	3.
Circular, ...	2.

I also find in my cases, in which the position was given, that the rupture was as follows: In twenty-four it was posterior, in fifteen it was anterior, in thirteen on the right side, in nine on the left side. Dr. Harris gives five cases in which the line of the rupture was along the cicatrix made by previous Cesarean section.

In some conditions there is only a partial laceration of the uterine tissues, and in some very rare cases only the peritoneum is torn. Again the uterus may be completely torn from cervix to fundus and the peritoneum remain intact; in these cases the rupture occurs laterally, as the serous membrane is not so closely attached to the uterus on the sides as at the fundus. Case seventy-six is an illustration of this kind. Having now spoken of the pathological condition, after a few remarks I will pass to the treatment. At what age is rupture most liable to take place? According to the statistics of Dr. Trask, twenty-four is the age that the greatest number of ruptures took place, namely, thirty. His table is as follows:

AGE.	CASES.
16–20 years,	10
20–25 "	21
25–30 "	61
30–35 "	38
35–40 "	46
40–47 "	10

This corresponds to the tables of Dr. Collins, showing that the greatest number of labors take place at twenty-four. Dr. Collins also has collected thirty-four cases, in which nineteen were between the ages of twenty-nine and thirty-seven, exclusive of these two years, in a range from sixteen to forty. In my cases, of those in which the age is given, I find the greatest number of ruptures at forty, namely: eight more than half occurred from thirty to forty, and the youngest age at which rupture took place was twenty-five. Therefore, it is clearly shown that the middle adult age is the most liable to rupture. In the cases where the duration of labor was specified I find that rupture took place as follows:

Within first 6 hours,	13 cases.
6 hours to 12,	7 "
2 days,	5 "
36 hours,	2 "
3 days,	1 case.
14 days (case 2),	1 "

Thus more than half occurred within the first six hours. Dr. Collins has shown that eighty per cent of ordinary cases of labor terminate in six hours, sixteen per cent in six to twelve hours, and one to two per cent in corresponding periods of six hours beyond this. Hence duration of labor, previous to rupture, is much greater than the entire duration of ordinary labor. Dr. Collins has prepared a valuable table showing the duration of labor in twenty-four cases of rupture, also the number of deliveries, and the proportion of the cases of rupture for the different periods taken.

LENGTH OF LABOR.	NO. OF DELIV.	NO. OF RUP.	% OF CASES.
Within 6 hours,	13,412	7	1 in 1,916
7 to 24 hours,	2,174	10	1 in 217
Above 24,	264	7	1 in 38

Dr. Trask's table is as follows:

Rupture took place before

6 hours, . . .	in 38 cases.
6–12 " . . .	" 36 "
12–18 " . . .	" 10 "
18–24 " . . .	" 20 "
24–36 " . . .	" 16 "
36–48 " . . .	" 14 "
3 days and less, . . .	" 11 "
4 " " " . .	" 2 "

At what pregnancy is rupture most liable to take place? This is a disputed question, some claiming that where the pregnancies are taken individually, the statistics will show more ruptures for the first pregnancy than for any other (Trask). This, I think, is a mistake, for if we look at all the different authors on the subject, we will find few who do not agree that the primiparous state is nearly always free from a rupture. In thirty-one cases reported by Dr. Harris in the October number of this JOURNAL not one was a primipara. Dr. Radford finds, in nineteen cases, that rupture took place from the first to the eleventh labor, and that the greatest number of ruptures occurred at the eighth labor. In seventy-five cases by Dr. Churchill, and others to make one hundred and two, they found ten cases that were primiparous, or one-tenth of all. In referring to my cases I find that out of fifty-nine cases only two were primiparous, or one-thirtieth of all, and that the greatest number of ruptures, namely, twelve, took place at the fourth pregnancy. This also corresponds with Dr. Harris' article, he giving the greatest number of ruptures at the fourth and sixth pregnancies. Still we find a great difference when referring to the table of Dr. Trask, which is as follows:

PREGNANCY.	CASES.	PREGNANCY.	CASES.
1st.	31.	8th.	7.
2d.	25.	9th.	7.
3d.	30.	10th.	12.
4th.	27.	11th.	8.
5th.	21.	12th.	5.
6th.	25.	13th.	2.
7th.	14.	Multipara.	25.

There must evidently be some mistake in the above table; for it is generally agreed, and strongly proven by all late authors, that the first pregnancy is very seldom complicated by so dangerous an accident as rupture of the uterus.

TREATMENT.

The indications for treatment in rupture of the uterus vary according to the period at which the rupture takes place, namely, during the early and the latter months of pregnancy and during labor. The measures for treatment may be designated as preventive and curative, the object of the former being to avert the influence of the causes described as predisposing to this accident; such as extracting the fetus and its appendages as soon as possible, and so facilitate the contraction of the uterus, preventing hemorrhage, and checking, in a degree, the inflammatory action which would otherwise immediately follow. Let us first look at the indications presented for treatment where the rupture takes place during the early months of gestation. Nearly all authors on this subject are agreed that when the rupture takes place during the early months of pregnancy the case should be left to nature, abstain from all operations, and simply treat the symptoms that follow. When, however, the rupture takes place during the latter months of pregnancy, we must proceed on an entirely different plan of treatment. The ovum must be extracted as soon as possible, and this may be accomplished by either of the following methods, the particular one depending on the position of the ovum: either by gastrotomy, forced dilatation of the os uteri, Cesarean operation, or by incisions made directly upon neck of the womb. When the ovum remains in the uterine cavity, we should endeavor to open the os uteri artificially (if it is not already open), and so extract the fetus. If, however, there should be any serious obstacle to prevent the rapid dilatation of the os uteri, this method of procedure should at once be abandoned and Cesarean section immediately performed. It is, however, when the rupture takes place during labor that our treatment is of the greatest avail.

All modern writers are generally agreed that in rupture of the uterus the child speedily dies; unless, therefore, delivery be rapidly completed, the child must necessarily be sacrificed. This knowledge is of importance, for without it we might sometimes be induced to adopt modes of delivery more painful to the mother and more difficult to the attendant, if we thought there was any likelihood of saving the child. When the rupture takes place, the child may remain in the womb or be driven out of the uterine cavity, hence the treatment varies as to the position of the child. When the child remains in the womb, it should be extracted as quickly as possible, and to accomplish this there are several different methods. If the child has made some advance, and the head is resting on the perineum, forceps should at once be applied and the child extracted; the child being prevented from receding into the abdominal cavity through the fissure, during she application of the forceps, by the hand of an assistant pressing on the abdominal walls of the mother. Care should also be taken that the blades are not passed into the peritoneal cavity through the opening, this being more liable to take place when the rupture is low down and transverse. The forceps should also be used when the head is in any part of the excavation, or above the brim, provided their application is allowable. Dr. Collins does not approve of the use of the forceps in this condition, as he claims that the introduction of the blades forces the head out of our reach; but this difficulty can be easily overcome, as mentioned above, by the hand of an assistant pressing on the abdominal walls. Dr. Collins also says that, "when the head presents and does not recede, it is rarely that lessening it and delivering with the crotchet will not be found the most eligible mode of proceeding." Dr. Collins evidently means by the head not receding it has become impacted; in this condition his treatment is perfectly right; if, however, the head is not impacted, it would be more justifiable to try the use of the forceps and even turning, before proceeding to the destruction of the child, provided there was no deformity of the pelvis or of the child to contend with.

If the rupture takes place during the presence of the medical attendant, turning should at once be accomplished if practicable, unless, as before mentioned, the head is nearly born and can be removed by the forceps, or the head has become firmly fixed in the pelvis and does not recede before the hand; turning in such a case would be madness; the child must be considered doomed and the treatment by Dr. Collins would then be justifiable. Again, turning is improper or impossible in a case of accidental rupture during pregnancy, or during labor when the os uteri is not sufficiently opened, or during labor when the pelvis is too much contracted, and when the child has escaped into the abdominal cavity, with the following exceptions when the diagnosis is uncertain and when the passages can be forced. Mr. Spencer Wells says, as turning is generally so fatal, he should think Cesarean section could be performed with greater safety. The conditions in which turning is applicable are as follows: When the child has escaped into the abdominal cavity, turning may be performed if the pelvis is roomy, the head not too large, the edges of the rupture not contracted, and the rent not confined chiefly to the vagina; but as contraction of the uterus almost uniformly takes place upon the escape of the child, turning would be out of the question. Turning may be attempted where the head is too movable for the forceps or the crotchet.

Dr. Burns is in favor of turning, and says: "It certainly ought with scarcely any exceptions always to be resorted to." If at any time of the rupture the head recedes so as to make it difficult to operate upon, it will be better to turn at once; do so by securing both extremities. If, however, there is any obstacle to prevent the use of the forceps or turning, gastrotomy should at once be performed. If a portion of the child has passed into the abdominal cavity, while the other part remains in the uterus, we may attempt delivery by acting on that part which remains in the uterus. If the child's foot or feet are hooked over the edge of the rupture, the treatment by Madame Boivin would be the best, which is to introduce the hand within the uterus, withdraw the extremity or extremities of the child from the abdominal cavity, and then extract the child by the feet; other conditions being favorable for the same." In some cases when the child is only partially protruded through the rent into the abdominal cavity, the labor pains have alone effected the delivery of the child through the natural passage. In the majority of cases, however, it will be found that, as soon as the liquor amnii has escaped, a more or less violent contraction of the uterus will follow; and if, at the time of rupture, the child has been partially forced through the rent, the lacerated edges will close upon the child's body so firmly that the delivery of the child would be utterly impossible. Under these conditions it would be best to enlarge the opening by means of some cutting instrument, and extract the child, provided the passage of the pelvis would admit of such a procedure; if not, the Cesarean operation should be performed, and that as early in the case as possible, as Dr. Harris has shown, in seventeen cases where the operation was performed early, the results were much better. If at the time of rupture the child escapes into the abdominal cavity entirely, and the uterus remains relaxed, and the entire passage permits, the hand should at once be introduced through the rent into the abdominal cavity, and the child turned and brought out by the feet. If the membranes remain intact, they must be brought out entire if possible, otherwise rupture and remove after the delivery of the child, together with the placenta and any clots that may be found. As soon as this is accomplished, the hand should again be introduced into the uterus, and by gentle irritation make it contract firmly upon the hand, so preventing a hernia of the intestines and the escape of any fluid into the peritoneal cavity; the placenta, of course, being removed before this is done. If, however, the child escapes into the abdominal cavity, and the uterus contracts firmly, an operation must at once be performed; and as experience has shown that of gastrotomy is the more preferable, and the one from which there has been the greatest number of recoveries. Dr. Trask says, "the performance of gastrotomy will furnish the best chance of success, it being relatively greater than any other method of operating." As the operation of gastrotomy has been shown to be the most successful, the question naturally arises, why not perform gastrotomy after every case of rupture? It certainly is indicated, and I cannot see any objection to it whatever. It is well known that opening the abdominal cavity at the present day is attended by very few risks to life; and when these are taken into consideration and compared with those following the escape of fluid into the abdominal cavity, such as we generally have after rupture, it is found they are comparatively slight. I would then strongly urge upon the profession the advisability of performing the operation of gastrotomy after every case of rupture, no matter whether the child has escaped into the peritoneal cavity or not. If we have the slightest reason to suspect the presence of any abnormal fluids there—and you hardly can have a rupture without it—let the abdomen at once be opened and its cavity carefully cleared of any debris that may be found. If at any time of the rupture the os uteri is not sufficiently dilated to allow easy access to the child, it should at once be dilated if possible; if, however, this could not be done, then an operation must be performed. Dr. Burns does not approve of dilating the os uteri forcibly, and so delivering; but if delivery per vaginam is possible without violence, it should by all means be the one selected. He also considers the Cesarean operation safer when the os is rigid, and in every respect preferable to violent endeavors to open it; but it should not be performed unless we can save the child, or the patient has reached an advanced stage of pregnancy. Some obstetricians being fearful of the disastrous consequences of an operation, have allowed the patient to remain undelivered, with the hope of her making a spontaneous recovery. Few when so left recovered, and I can see no reason why they should have been so left, unless the attending physician thought the few remaining minutes of the patient's life ought not to be embittered by the agony which every attempt at delivery would be sure to produce; but we must not allow these feelings to have any weight with us, when we know that any little chance for life a woman may have is greatly decreased by her remaining undelivered. That delivery has a great influence upon mortality may be seen from the following table of Dr. Trask. Of all cases delivered, there were two hundred and seven; of these twenty-seven or thirty-seven per cent recovered. Total of all cases undelivered were one hundred and fifteen; of these, twenty-seven or twenty-three per cent recovered. In twenty-six undelivered cases, the fetus escaped into the abdominal cavity and was discharged after decomposition; of these three recovered. Of those who were delivered, fifty-four per cent survived twenty-four hours, while of those undelivered twenty-seven per cent survived about the same time. The relative success of different methods of treatment has been collected by Dr. Trask, and are as follows:

(*a*) When the head and the whole or part of the body had escaped into the peritoneal cavity.

(*b*) When the pelvis was contracted.

GASTROTOMY.

A		B	
SAVED.	LOST.	SAVED.	LOST.
16	4	6	3

TURNING, PERFORATION, ETC.

A		B	
SAVED.	LOST.	SAVED.	LOST.
23	50	15	30

ABANDONED.

A		B	
SAVED.	LOST.	SAVED.	LOST.
15	44	0	11

In seventy cases of recovery, forty-eight were delivered with ease, including gastrotomy cases. In ninety-one fatal cases, thirty-eight only were delivered with ease. In fifty-nine cases of Cesarean operation, fifty-two per cent recovered, forty-eight per cent died. Color of patient given in fifty-seven cases; of these thirty were white, twenty-seven black; of the whites fifteen recovered and fifteen died; of the blacks fifteen recovered and twelve died.

The comparative results between Great Britain, Ireland, and the United States are in one hundred and six cases; of these eighty-eight died. Child lived in sixty cases. United States, sixty cases, twenty-eight died. Child lived in twenty-seven cases. From the preceding table it will be seen that gastrotomy is the operation which should be chosen in preference to any other. We also see that the United States have a proportional greater number of recoveries than the other countries mentioned.

From the foregoing I have arrived at the following conclusions:

1st. That rupture of the uterus is exceedingly rare, occurring only once in four thousand eight hundred and eighty-three cases.

2d. That the most frequent causes are, in their degree of frequency: deformed pelvis, more especially diminished antero-posterior diameter; disease of the uterine tissue; malformation and abnormal positions of the child; ergot and traumatism.

3d. That the symptoms are easily recognized, almost always present, and generally very severe.

4th. That the prognosis is exceedingly variable, the greatest number of recoveries being one in three.

5th. That the greatest number of ruptures takes place from twenty-five to thirty, and in the third and fourth pregnancies.

6th. That gastrotomy is the preferable mode of delivery when the child has escaped into the abdominal cavity.

Let us then consider no case as hopeless, and continue to exercise our uttermost skill while life remains.

THE PRACTICE AND PERILS OF BELLY-SQUEEZING IN MEXICAN OBSTETRICS.

BY

C. M. FENN, M.D.,

San Diego, Cal.

THE primitive methods pursued by the midwife among our native races, though not unknown to many of the profession on this coast, may be new, as well as interesting, to some of your eastern readers; and while criticising the modus in quo, as detailed further on, they may recognize the germs of a system already practised by them, or which they may yet adapt to obstetric uses, with advantage to patient and physician. It is not impossible that the inspiration which suggested Dr. Paul

F. Mundé's recent and elaborate contributions upon the subject of External Manipulation in Obstetrics (vide this Journal for July, '79, et seq.), may have been derived from such a source. During the past eight years, the writer confesses that he has frequently and successfully resorted to external manipulation, whenever the fetus was yet too high for the application of instruments, or when the patient objected to the use of forceps, as many of them superstitiously do. And this experience has confirmed me in the opinion that the parturient effort can be greatly aided, if not expedited, by thus fixing the abdominal muscles, and, at the same time, steadying the uterus and directing it toward the axis of the superior strait. Furthermore, during the weary hours of labor, the accoucheur ceases to be merely a looker-on, but, by reason of some such tangible and practical effort, is credited with earning, not only his fee, but also the lasting gratitude of his patient.

But "revenons à nos moutons." The parterra (midwife), usually the most muscular woman in the pueblo, has an assistant, regular or otherwise, who is by no means a novice in feats of endurance. The twain, ignoring the *vis medicatrix naturæ* dogma, seem to proceed upon the presumption that the lying-in-woman has gotten into a bad scrape, and that their province is to get her out of, *vi et armis*, if need be. Having been summoned to a patient in labor, they first divest her of all superfluous clothing, sometimes of everything! A cord of twisted cloth, or rope, is then tightly drawn about the abdomen, above the fundus of the womb. The belly is then well rubbed or anointed with an infusion of some astringent herb. to be repeated p. r. n. The lying-in-woman (a misnomer) now takes a position on the bed, floor, chair, or knee, in front of one of the operators, and the process of squeezing begins. Two brawny arms and hands are clasped around and in front of her abdomen, and with each pain give it a gentle squeeze. In this way the uterus becomes accustomed to pressure, while the dilatation of the cervix proceeds. So soon as the waters break, or there is any unusual evidence of yielding (they do not seem to rely upon digital examinations in the least), a few minutes are given for rest and refreshment, in the shape of hot tea, or gruel, and then is inaugurated the serious business of the campaign. Now, and henceforth, each expulsive effort of the uterus is supplemented by a relentless embrace, or hug; and as the contracting organ descends, the encircling rope is pushed down toward the pelvis. If this second stage is protracted, the midwife, ever fertile in resources, causes the patient to squat, to hold her arms above her head, or to be suspended by a rope passed under her arms and thrown over a rafter; or supported between two women is compelled to pace the floor at a most rapid gait. Now that the presenting part has escaped the inferior strait, the victim is sometimes permitted to lie down for the first time; but in the event of any delay in the expulsion of the child, one or both of the parterras grasp the woman by the buttocks, and fairly shake the fetus out of her! The placenta is not infrequently expelled with the child, or follows in quick succession; if not so delivered, it is squeezed or shaken out without ceremony. In some instances, the rope is moved down as far as possible, and left in that situation for several hours; in others, the patient is swathed in a sheet, or very wide binder, until, from knee to arm-pit, she resembles a mummy.

The perils growing out of this practice may be best illustrated by a few cases recalled at random.

CASE I.—About two years since, I received a midnight summons to the bedside of a baker's wife, a resident of Old Town. She was a well-formed, robust multipara, and had been in the hands (arms?) of the parterra for more than twenty-four hours. Upon examination, I found the funis prolapsed and pulseless, and the feet of the child resting upon the right anterior brim of the pelvis. With great effort I could hook my forefinger about one of the ankles, but the foot was seemingly welded to the pelvis, and could not be dislodged. Neither changing the position of the patient, nor external and upward pressure produced any effect upon the uterus and its contents: it had contracted upon the fetus, and there it proposed to remain. Finally, by the aid of a blunt hook the difficulty was removed, and a dead child delivered. After lying in for nine days, and suffering, meanwhile, a sharp attack of ephemeral fever, the mother was convalescent.

CASE II. came under my observation through consultation with an infirm and aged brother of our profession. He had succeeded a belly-squeezer, as the parterra is called, and had spent three hours in a vain endeavor to replace the funis and bring down the second foot. Attaching a tape to the end of a gum-elastic bougie, we engaged and replaced the cord, and delivered the woman in the knee-elbow position. After so long a time, however—the labor had continued for twenty hours—it was impossible to resuscitate the child. In a few days, the señora was apparently none the worse for the ordeal.

CASE III. occurred in the person of a very large and symmetrical Mexican woman, the mother of several children. Relays of women had been manipulating her for twenty-four hours, and reported that "When something came out ten hours ago, their efforts had ceased; but that the great pains had continued all night." At the time of my arrival, her swarthy skin was blanched and her facial expression was clearly indicative of terror and exhaustion. After each ineffectual throe, her exclamations were, "I shall die! I shall die!" By way of presentation, if such it could be called, I discovered a pulseless funis, the right hand and a portion of the right chest. The head and left arm, resting side by side up in the abdomen, were hooded so closely by a segment of the uterus, that the tips of the fingers could barely reach the base of the occipital bone. The breech regarded the right iliac fossa, and was also so completely enveloped by another portion of the womb as to be practically out of reach. Assured of the death of the fetus, no attempt was then made to replace the cord. More than an hour, however, was passed in various and vain expedients, which need not here be detailed. I now suggested operative interference, and left to procure the requisite instruments. Fortunately meeting Dr. F. M. Turnbull, a recent arrival from the East, I described to him the dilemma and requested his co-operation, intimating that the case might not be without interest. Our efforts were now seconded by the complete anesthesia of the patient, one of us administering the chloroform, while the other sought for head, or feet, and were as fruitless as my previous attempts. With the doctor's concurrence, I now eviscerated the thorax and a portion of the abdominal cavity, and fixing a hook in the supra-clavicular space, was enabled to double the body of the fetus upon itself, and extract it. The resistance was still so great that a long pull, and a strong one, was required; but there was not the slightest abrasion of the soft parts. The feet, which had so successfully eluded us, were subsequently found to be doubled under and imbedded deeply in the nates. These minute details are given to show the amount of pressure to which the uterus had been subjected during the squeezing process.

Convalescence in this case was retarded by what seemed to me to be an attack of herpes phlyctenodes. About the third day after her confinement, an eruption appeared near the vulva, and rapidly involved the left hip and nates of same side. The innumerable small globular vesicles were at first distended with transparent lymph, which in a day or two became turbid and lactescent. Furthermore, the intense heat and deep-seated, smarting pain, so characteristic of that form of herpes, caused her great suffering. In ten or twelve days, however, she was enabled to resume her household duties.

It will have been observed that all of the cases cited were footling or, at least, abnormal presentations, and that prolapse of the funis and death of the child occurred in each. As such a complication is always considered a formidable one, it is not an unfair inference that the mortality was largely due to prolonged exposure of and pressure upon the cord; and in confirmation of this presumption, I have records of three more cases, not here detailed (the baker's wife again being one of them), in which the result was not so disastrous to the child. By reason of an earlier summons to two of the cases, I was enabled to replace the funis and save life.

My impression is that this practice is not current to any great extent outside of the nationality named. The exceptions which have come under the writer's observation are briefly as follows.

A German Jewess says she suffered for years from "womb pains" (subacute metritis ?) which she attributed to the squeezing process. Fate of child not stated. She could not be induced to try it again.

Another, a plethoric Frenchwoman, is none the worse for the ordeal, but has lost two children; at one time when Dr. B. succeeded the midwife; and again when I was the unfortunate successor. A brief history of her last accouchement will illustrate one of the very few placental complications I have met with in these cases. At eleven P.M., after protracted pains and manipulation, the waters broke, and with each contraction thereafter water and blood in considerable quantities came away. The parterra desisted at the sight of blood, and noting no further progress, advised sending for me early next morning. The feet were presenting and the pains had ceased. Suspecting detachment of the placenta, I was further admonished by the continuing hemorrhage to hasten delivery as much as possible. But the body of the infant was already cold, and life, of course, extinct. This without doubt would have added another to the cases of prolapsed funis if the cord had not encircled the child's neck and body!

In the case of a German housewife, the afterbirth had not come away six hours after the birth of the child. I found the cord tied around the leg of the lying-in-woman, and the placenta apparently detached in utero, but engorged. Delivery was accomplished in a very few moments.

A robust primipara, wife of an American rancher, did not make satisfactory progress in the hands of a parterra, and other assistance was summoned. At the time of my visit, no waters had come away, nor could I detect any signs of a presenting membrane; the head was firmly engaged in the superior strait; maternal parts very dry and hot; exhaustion imminent. Thorough nunction with fresh lard and moderate external pressure not expediting matters. I applied forceps and brought the head into the pelvic cavity. The uterus soon resumed its efforts and a full-sized infant was born. The placenta, too, followed in due time, and as I was booked for the steamer which was to sail in a few hours, I congratulated myself upon the happy termination of the case. Under pressure of my left hand the uterus assumed the proportions of a small ball. I left the bedside for a moment to examine the afterbirth, as is my custom before applying the binder, and found a certainly anomalous condition of things. The chorio-amniotic membrane was wanting, as if it had been deftly trimmed around and off with a knife. The cord was attached to the edge of the disc: the numerous veins converging towards the margin, formed two cords or vessels, which at the distance of two inches coalesced into one normal funis. My first thought was to institute a search for the missing membrane, but before I could reach the bed the patient was flooding! To grasp the uterus with one hand and introduce the other into its cavity required but a brief time. The portion removed did not cover the palm of my hand and certainly would not have filled an egg-shell. It was dense in texture, and in the absence of all amniotic fluid must have fitted the fetus "like a glove." The physician with whom the case was left was not called upon.

The fact, however, which, in the consideration of such cases, impresses one most, is the capability and possibility of the uterus in the matter of endurance. The sequel is certainly at variance with our preconceived ideas of that organ. Convalescence has been rapid and normal in all of the cases which have come under my observation, and sufficient time has elapsed (more than six months since the last case) for the development of uterine ailments. More than this, in a not limited experience among these people, I have met with but two or three cases of uterine disease, and am prepared to assert that metritis, oöphoritis, and kindred maladies are exceptionally rare. In partial explanation, it may be said that feticide is under the ban of their religion, thus eliminating one fertile source of uterine disease; and in the matter of dress, the garment is adapted to the body, and not the form to the clothing, so that the internal organs are permitted to develop in the right place, and in the proper manner.

CASE OF RUPTURE OF THE PARTURIENT UTERUS.

BY

PAUL F. MUNDÉ, M.D.

(With three woodcuts.)

THE following case of rupture of the uterus is thought worthy of special report, partly from the comparative rarity of the accident in this country, where dystocia from narrow pelves is but rarely met with; partly from the large size and varied character of the rent, and partly from the careful anatomical description of the specimen, which has kindly been furnished me by Dr. Henry J. Garrigues, pathologist to the New York Obstetrical Society.

The case occurred in the practice of Dr. L. L. Bradshaw, of this city, who, on Friday, January 7th, 1881, informed me that he had met with a rupture of the uterus during labor two days before; had extracted the child by version with great difficulty, and that the woman still lived. He gave me the following history of the case:

January 5th, 1881, he was called, at 3.30 P.M., to see Bridget B., æt. 33 years, in labor with her first child (so claimed, but reported to have been delivered of premature dead twins before marriage; details not obtainable). She was in the first stage of labor, with slight pains, the os moderately dilated, vertex presentation. At a subsequent examination, at 7.30 P.M., he detected a great diminution in the antero-posterior diameter of the superior strait of the pelvis, but was unable to procure a distinct measurement. The pains were not strong, occurring but every eight to ten minutes. The os was dilated to the size of a silver dollar. The membranes had ruptured, and the head engaged in the pelvic brim. He waited two hours longer, and found the pains growing very feeble and infrequent, and, upon examination, felt that the head had receded from the pelvic brim, and that the placenta had partly descended into the vagina; there was but slight hemorrhage. The patient's face was somewhat anxious, the pulse weak. He called in Dr. J. W. Flynn, who examined her, and found the placenta in the vagina, the occiput of the child in the right iliac fossa, pointing anteriorly. The extremities of the child were exceedingly distinct on the left side, as though immediately under the skin. The diagnosis of probable rupture of the uterus was made, and immediate delivery decided upon. Chloroform was given ; Dr. Flynn performed version, and, after two hours of alternate efforts (assisted also by Dr. R. J. O'Connell), a male child, weighing 9½ pounds, was finally extracted. The placenta followed at once, and immediately after it a coil of small intestines protruded from the vulva, and was plainly recognized as such by direct and transmitted light. A ribbon-shaped flap also hung down from the cervix. Up to this time, the woman showed but slight sign of collapse, and said that she felt nicely. The intestines were replaced manually. She was ordered morphine sufficient to quiet her, and stimulants, and left at 3.30 A.M. Since then, thirty-six hours, she had been doing fairly, but Dr. Bradshaw was apprehensive, from the tympanites and rapid pulse, that general peritonitis was developing.

I enjoined upon him particularly to call me to the post-mortem, which I had no doubt would soon be in order ; and accordingly, at noon of the next day, January 8th, he came to ask me to that event. The parties, who were of the usual intelligence of the laboring classes, objected to the autopsy, but were induced to give a partial consent to opening the body, on representation that it was a case of accidental death, and future judicial inquiries might possibly be avoided by ascertaining the exact nature of the injury. It was, however, desirable to avoid all chance of being interfered with, by removing the uterus as rapidly as possible, deferring its careful examination until a later period. I, therefore, with the utmost dispatch, excised the uterus, which I found to be separated from the cervix and vagina in front and to the right, wrapped it in a cloth and hid it under my overcoat. A rapid glance showed me that, in my haste and with the short knife at my disposal, I had divided the organ at the junction of cervix and vagina, and had therefore not only removed none of the vagina, but had even left what appeared to me the lower flap of the torn anterior and right side of the cervix within the body. The rent seemed to me to extend almost entirely across the anterior lip of the cervix, slightly below the internal os, entirely separating the cervix at this point (the lower flap remained in the body), and then to spread less deeply up towards the right cornu. The muttering of the relatives in the hall warned me not to prolong the examination. I therefore reluctantly left the remaining portions of the cervix and vagina in the body, and proceeded to assure myself of a most important point in the etiology of the accident, namely, the degree of the pelvic deformity. I found a pelvis with apparently entirely normal lateral and oblique dimensions, but with an antero-posterior deformity of the rachitic type. By means of my fingers and a stick of wood, inserted through the abdominal incision, I measured the distance between promontory and inner surface of the symphysis pubis quite accurately, and found it to be barely 2¾ inches. The general physique of the woman was fine, and showed no sign of rachitis. The diagnosis of general peritonitis proved to be correct. After hastily sewing up the abdominal incision, we rapidly departed, our ears being greeted by various remarks of not very flattering character from the assembled female population of the house, as we hurried down the stairs. At Dr. Flynn's house, I opened the uterus, and found the condition already described confirmed. The uterus was put in alcohol, and not again examined by me until I presented the specimen (with Dr. Bradshaw's consent) to the Obstetrical Society, January 18th. When the specimen was passed around, Drs. T. A. Emmet and W. M. Polk expressed the belief that the rupture was not through the long, attenuated cervix, as I had supposed, but through the vagina, and that the rupture was one, not of the uterus, but of the vaginal pouch. From a hasty examination of the specimen, incomplete as it was in that part, I was inclined to believe their view correct, and so expressed myself. The subjoined report on the specimen by the pathologist of the Society, Dr. Garrigues, however, proves that my first impression was the correct one, and that it was really an extensive laceration of the cervix and body of the uterus.

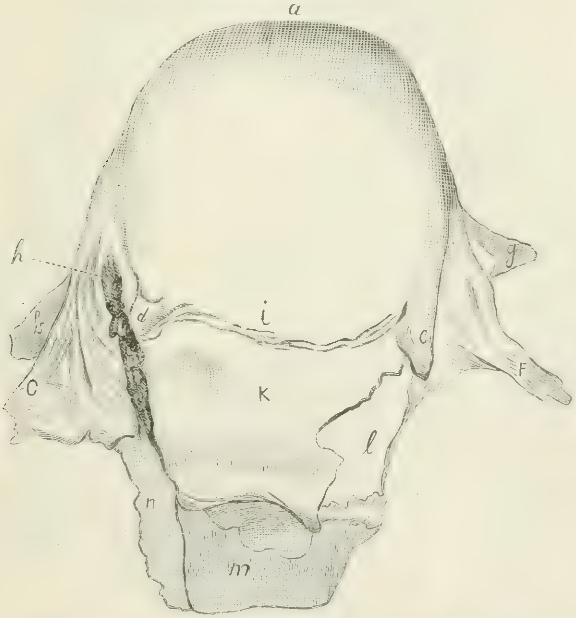

Fig. 1.—*a*, Fundus. *b*, Right ovary. C, Right tube. *d*, Right round ligament. *e*, Left round ligament. F, Left tube. *g*, Left ovary. *h*, Rent through broad ligament. *i*, Rent through peritoneum of anterior wall of body. K, Flap composed of peritoneum and a few muscle fibres of anterior wall of cervix and corpus. *l*, Part denuded of peritoneum in removing the uterus from the body. *m*, Posterior wall of cervix. *n*, Rent through side of cervix (place where part of cervix has been torn off).

The report of the pathologist is as follows :

" It is most decidedly a ruptured uterus. We need no other proof of this than that the whole anterior surface is covered with peritoneum. The peritoneum covers the pouch between the uterus and the bladder, but no part of the anterior wall of the vagina.

The nature of the epithelia cannot be used, for the specimen had been in alcohol eight or ten days when I got it; besides that, it probably was destroyed during parturition. Nor can we argue from the presence or absence of plicæ palmatæ, for they, too, have disappeared in consequence of labor. Unfortunately, the specimen has been cut off so short in removing it from the body that the lower end of the rent is not seen.

If first we examine the outside (Fig. 1), we find a rent beginning between the round ligament and the Fallopian tube of the right side, and extending 14 centimetres downwards through the broad ligament and the right side of the cervix. From this longitudinal rent, we see another branch off at right angles, 3 centimetres from the upper end of the first, just below the place where the round ligament separates from the uterus. This rent goes only through the peritoneum, and forms a slightly irregular arch

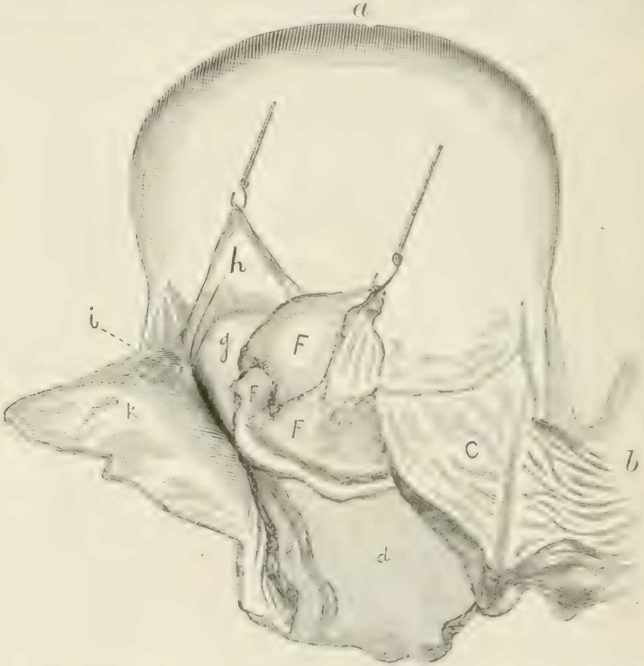

FIG. 2.—*a*, Fundus uteri. *b*, Flap composed of peritoneum and a thin muscular layer turned to the left. C, Part of anterior wall of cervix before covered by part of the flap. *d*, Posterior wall of cervix. *e*, Rent through right side of cervix. F, Rent through lower part of edge of corpus. *g*, Edge of corpus. *h*, Anterior layer of broad ligament with round ligament drawn up by hook. *i*, Cul-de-sac extending on posterior side of corpus *k*, Posterior layer of broad ligament with Fallopian tube turned to the right.

from side to side, ending just below the spot where the left round ligament leaves the uterus, the convexity of the arch being turned downward in the direction of the os. The centre of this arch is situated 15 centimetres below the fundus uteri.

Next we will follow these rents into the deeper layers (Fig. 2). The two rents mentioned form the outlines of a flap, which can be thrown over to the left side. It is almost square, measuring 8 centimetres in both directions. In some places, it consists of peritoneum only ; in others, a thin layer of the muscular part of the body and cervix of the uterus adheres to it.

Next we open the rent in the broad ligament, throwing the tube to the left and the round ligament to the right. This enables us to see that the rent extends 2.5 centimetres towards the mesial line behind the body of the uterus, where it forms a cul-de-sac, the upper end of which is situated only 9 centimetres below the level of the fundus. Another part of the rent, lower down, and separated from the former by a prominent ridge of muscular tissue, goes in an oblique direction downwards, and

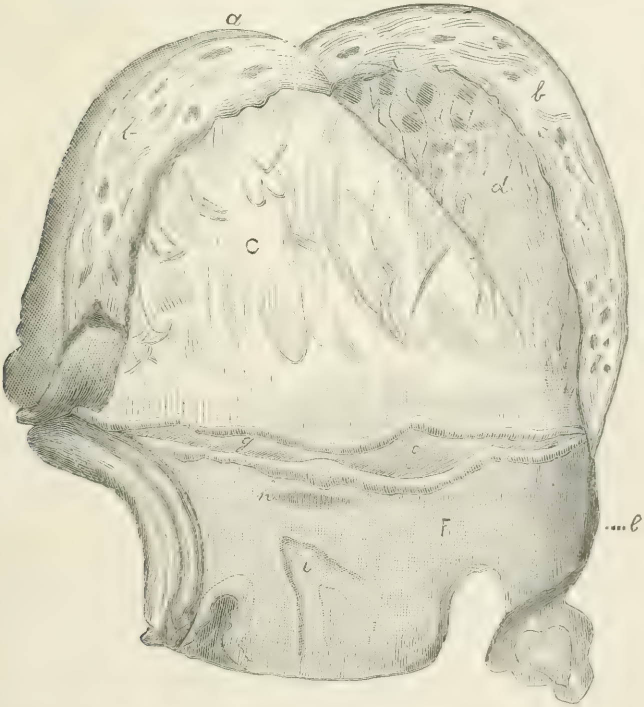

FIG. III.—*a*, Fundus uteri. *b*, Incision through anterior wall of body, showing sinuses. C, Posterior wall. *d*, Anterior wall with placental site. *e*, Thickness of cervical wall. F, Interior of cervix. *g*, Circular incomplete internal rent. *h*, Small tear. *i*, Denuded surface.

inwards right through the muscular wall of the body and the cervix, which, at the upper part of the rent, is more than 2 centimetres thick, into the cervical canal.

Finally, we will open the uterus and inspect the internal surface (Fig. 3). We notice, first, the great difference in the thickness of the walls of the body and the neck, the former reaching 3 centimetres, while the latter measures only 5 millimetres. There is a very marked line of demarkation separating the two, the wall of the body springing suddenly forward into the interior of the cavity, with a layer almost as thick as the whole cervix. On closer examination, we find that this is due to an incomplete circular rent going round the whole cervix just at the point where it joins the body. This rent goes through the mucous membrane and into the muscular coat, but does not reach the peritoneum.

To sum up, then, this specimen shows a complete longitudinal rent through the right side of the cervix, extending 3 centimetres up into the corpus, and entering the peritoneal cavity between the round ligament and the tube; an anterior incomplete external branch, and a circular incomplete internal branch.

The placental site, recognizable by large openings filled with thrombi, is seen on the anterior wall of the body. Most of the inner surface of the body, inclusive of the placental site; is covered with shreds of decidua, but in some places the muscular tissue is found bare. On the interior surface of the neck, the mucous membrane is seen torn, or having lost more or less extensive shreds in several places. The lower part of the cervix, with the os externum and the whole of the vagina, have been left in the body in removing the specimen. Microscopical examination shows that the uterine tissue is in healthy condition.

According to the most reliable statistics, those of Jolly and of Franqué, rupture of the uterus occurs only once in 3,403 or 3,225 confinements. The event being so rare, I have thought it might be useful to give an accurate and detailed description of the specimen submitted to me."

From the exhaustive paper by Dr. Ames on this subject, published in the present number of this JOURNAL, it appears that the proportion is even higher than quoted by Dr. Garrigues. Dr. Ames found that an average drawn from the statistics of Ramsbotham, Lehmann, Hicks, and Guy's Hospital, covering 43,800 cases of labor, gives one case of rupture to 4,883 confinements.

So far as I am aware, there are no statistics giving the proportion of ruptures in the United States as compared with that in European countries. So much is certain, that the accident is far less common in this country than abroad, notwithstanding the difficulties attending the practice of obstetrics in our rural districts, and the imperfect practical training of our medical students in this branch. This comparative immunity is doubtless to be attributed to the infrequency of the higher degrees of contracted pelvis, and the almost invariable attendance of the lying-in women by a physician, instead of an ignorant midwife, as abroad. Dr. Ames has collected one hundred and six cases from foreign sources, and only sixty cases in this country. Of the foreign cases, eighty mothers and forty-six children died; of the native cases, only twenty-eight mothers, but thirty-three children died.

A word may be said as regards the treatment adopted in this case. After the results reported by Dr. R. P. Harris, in his recent paper on "Laparotomy for Rupture of the Parturient Uterus,"[1] of twenty-one recoveries after laparotomy out of forty cases of rupture, being over fifty per cent, against about sixteen per cent saved out of all cases of rupture treated by turning and extraction, perforation, etc., or abandoned undelivered, it behooves us, in every case of the kind, to consider well before we subject the mother to the danger and exhaustion of protracted and difficult efforts at extraction (occupying one hour in this case), rather than to rapidly open the peritoneal cavity and easily remove the child. Particularly is this true in those cases where the whole or part of th ebody has escaped into the peritoneal cavity. Trask's statistics show sixteen out of twenty mothers saved by laparotomy under this condition. While the medical attendants in the case here reported certainly followed the rule still almost universally adhered to, and are to be commended for their finally successful efforts at extraction through the contracted pelvis, without inflicting the slightest further injury on the mother, it may well be asked whether the chances of the patient might not have been bettered and the probability of peritonitis lessened, if the abdomen had been opened as soon as the rupture and the escape of the child's extremities into the peritoneal cavity were diagnosed, the child and placenta easily removed, and the cavity then cleansed of clots, and perhaps the rent united by sutures. Under similar conditions, and the external surroundings permitting (which, perhaps, was not the case in this instance), I should, in a future case, be decidedly more inclined to perform laparotomy than to attempt to turn a child partly in the abdominal cavity, and drag it through a pelvis so contracted as to call for craniotomy in the large majority of cases. In this course, I should be supported by the opinion of Playfair and Leishman, and the statistical deductions of Trask, Jolly, and Harris. If the head were still accessible and sufficiently fixed in the superior strait, of course perforation and extraction with the cranioclast or cephalotribe would be the most rational proceeding.

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[1] This JOURNAL, Oct., 1880.

DESCRIPTION OF AN OVUM OF THE SECOND WEEK OF PREGNANCY, WITH REMARKS ON THE DECIDUA REFLEXA.

BY

JOS. KUCHER, M.D.,

New York.

(With one lithographic plate.)

The interest of the following case lies more in the membranes than in the ovum. From the latter I could not gain more information than we already possess through the investigations of Reichert (Beschreib. einer frühz. menschl. Frucht im bläschenförm. Bildungszustande. *Archiv für Anatomie, Physiol. u. wissensch. Medicin*, 1873), and Breus (Ueber ein menschl. Ei aus der 2. Woche der Schwangerschaft. *Medic. Wochenschrift*, 1877, No. 21). But the membranes demonstrate the incorrectness of Coste's view regarding the formation of the decidua reflexa, and supply material for a new theory.

To Dr. Conrad, of this city, came a lady who said that she had passed something by the vagina on the same morning, and that she wished to know what it was. Dr. Conrad directed her to me. I examined the specimen, which she brought in a glass, and found that it was a cast of the uterine cavity. The question now was whether it was a case of membranous dysmenorrhea or miscarriage. Her history settled the question. She told me that she is 20 years of age, had the last menstrual flow on December 27th, 1880, lasting three days, as usual without pain. She was married January 2d. In January, she had morning sickness, had vomited several times, but was otherwise quite well. She did not suppose herself pregnant. February 10th, she felt colicky pains for which no apparent cause could be found, as there was no history of over-

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AND
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APRIL 1881.

Fig. 2.

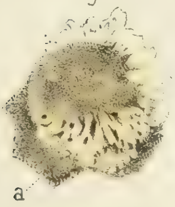
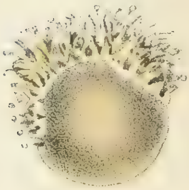
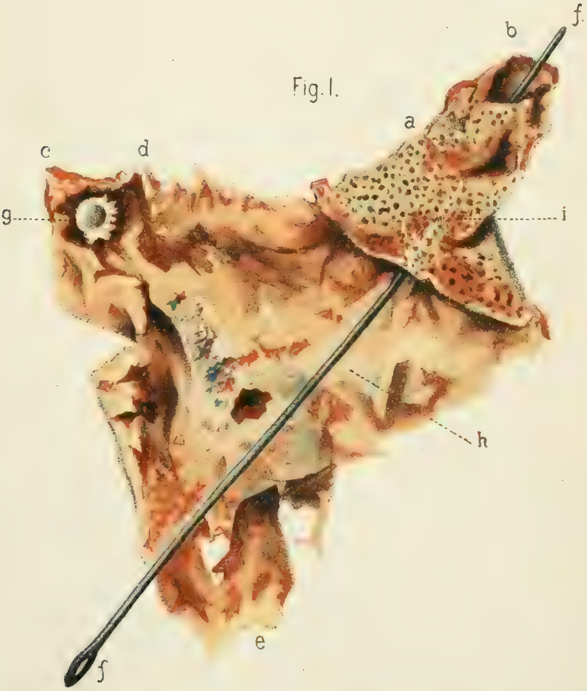


Fig. 3.



THREE TIMES NATURAL SIZE

Fig. 1.



DECIDUA AND OVUM OF ABOUT TWELVE DAYS. (KUCHER)

Fig. 1. a, b, c, d } Intrauterine part of tubal mucous membrane.
e Internal orifice of uterus.
ff Probe, passed through cast of one tube
g Ovum
h Ragged surface of decidua
i Smooth, dotted surface of decidua.
Fig. 2. a Decidua

work, strain, or any other predisposing cause. The pains continued during the night, in the morning the specimen which she had brought with her was passed with a small quantity of blood, and the pains subsided. I told her that she had had a miscarriage, and that she must keep quiet for some time.

As this cast could be the result either of membranous dysmenorrhea or of a miscarriage, I wished to satisfy myself by finding undeniable proofs of pregnancy. I did not expect to find the ovum. I had often examined such casts, but had never succeeded in finding the ovum. I hoped, however, to be able to find by microscopic examination some villi of the chorion still adherent to the decidua. The cast was a hollow sac of triangular shape, but instead of the obtuse upper angles as usually described, there were two prolongations corresponding to the intrauterine portion of the tubes. The length of the triangular sac measured 6.5 cm., and the base 4 cm. The two prolongations were also hollow and of triangular shape, each 2.5 cm. in length and 1.5 cm. at the base, and of the same structure and thickness as the membrane of the large sac, except on a straight line along their upper margin, where the membranes were thin and transparent. At the apex of these prolongations was a very small opening permeable for a very thin probe. These prolongations were casts of the lining membrane of the intrauterine portion of the tubes. In every text-book, the hypertrophy and tumefaction of the lining membrane is described as limited to the uterine cavity. But in this case the mucous membrane of the intrauterine portion of the tubes was just as much hypertrophied as that of the uterine cavity. The possible presence of a bicornite uterus is excluded by the shape of the base of the large triangular sac. I opened the sac and looked for traces of villi, but the microscopic examination revealed only numerous blood-vessels gorged with blood, uterine glands, and cells. At last, I saw at the top of one of the prolongations, shining through, a vesicle of the size and appearance of a Graafian follicle. I opened the prolongation very carefully and found the ovum, a round vesicle of 5 millim. diameter, still adherent by delicate villi to the membrane through its entire circumference. The villi were like tender roots attached to the soil, but so firmly adherent that in separating them the central extremities were torn. The ovum was covered with villi throughout its entire circumference, except over a small area the size of which could not be ascertained, because in separating the ovum from its surroundings I tore the villi over one-third of the surface without leaving traces of the villi. But that a small area was free I am quite sure, because I saw the ovum shining through the decidua without villi intervening. The villi were one millim. in length. I opened the ovum, which was still a tense vesicle, carefully, but neither Dr. Noeggerath nor I could find an embryo in the clear fluid contained. At one spot I found an aggregation of small cells, as described by Reichert and Breus, but no other trace of an embryo or amnion. If an embryo had been present it could not have escaped our notice, because as I opened the vesicle it was still tense through the contained clear fluid which would have surely leaked out through the smallest opening. Then the examination in the presence of Drs. Noeggerath and Seessel was so carefully made that the least trace of an embryo or amnion must have been detected.

Reichert, basing upon his investigation, declares the aggregation of cells to be the area germinativa, the external covering villous ectoderma, and the whole germinal vesicle. Breus objects to this because he found the covering of the vesicle consisting of an external epithelial layer and of an internal of young connective tissue, each villus consisting of a central axis of connective tissue covered with an epithelial layer. I arrived at the same results as Breus by my investigation. Koelliker (Entwicklungsgeschichte des Menschen, 1876, page 303), after repeating the description given by Reichert and acceding to his conclusions, says: "Another question, however, arises, whether the mentioned ovum was normal, and I urge particularly that the presence of villi in a fecundated ovum without a definite embryonic structure and without amnion gives rise to doubt. In all mammalia, in which hitherto villi have been found, they appeared after the formation of the amnion on the external layer of the germinal vesicle, which is the serous covering, but never before. As, however, the possibility cannot be denied that the germinal vesicle develops villi very early, as in rabbits, it would be hazardous to doubt the observation of Reichert." Storch (*Virchow's Archiv*, Band 72, p. 605) rejects the supposition entertained by many of resorption of a formed embryo, and thinks that the primitive trace has been destroyed and no embryo had been developed.

More satisfactory proved my investigation regarding the formation of the decidua reflexa, and this case may perhaps throw some light upon its formation or rather absence of formation. The structure of the decidua has been investigated with the most reliable results by Kundrat, Engelmann, Friedländer, and Leopold. My own examinations satisfied me of the accuracy and excellence of their descriptions. But it often struck me as peculiar, especially in cases of membranous dysmenorrhea, when a whole cast of the lining membrane, which is of the same nature as the decidua, has been shed, that the external surface, which was smooth, dotted with little depressions and slightly or not all infiltrated with blood, should be the internal, and the other, which was infiltrated with blood, should be the external surface. Now, if we examine the uterus of a case in which death intervened during the menstrual epoch, we always find the lining membrane deeply infiltrated with blood. My objections were met by pathologists saying that the sac was inverted and that hemorrhage had taken place only between the layers of the lining membrane. I acquiesced, as I encountered everywhere the same explanation. The generally accepted view is well expressed by Breus (l. c.) as follows: "The smooth internal surface of the decidua, dotted with little depressions, punctured as it were, formed the external wall of the sac, while the ragged external surface was turned toward the interior of the sac. As it is the case with the membranes and the placenta at full term, so in this case the decidua was inverted by its separation and passage through the cervix, the separation having begun at the fundus and terminated at the cervix." Breus was probably mistaken in his explanation, as his specimen was so much infiltrated with blood that a mistake could very easily be made.

In my case, the decidua was of the same nature, with the smooth punctuated surface externally, and the ragged surface infiltrated with blood internally. But the explanation as given by Breus and others could not hold good in this case. At first sight, it was already quite improbable that the whole sac, including the intrauterine portion of the tubal lining membrane, had been inverted. Then, the opening of the sac corresponding to the internal orifice uteri was so narrow that it was quite impossible that the whole inverted sac could have passed through it. Furthermore, the ovum was attached to the decidua by the villi of its chorion on all sides, so that in separating them the central portions were torn, and many of the villi remained attached to the decidua, like delicate roots to the soil. An inversion of the sac without tearing most of the villi was not possible. Thus it was in this case an unquestionable fact that the smooth, punctuated external surface, which was formerly thought to be the internal covering of the sac, was the external covering.

According to the teaching of physiologists, the smooth, punctuated surface was either the external surface of the decidua reflexa or the internal surface of the decidua vera. That it was not the internal surface of the decidua vera, I could positively assert, as already mentioned. To regard it as the external surface of the decidua reflexa seemed absurd, as the ovum had only five millimetres diameter, and we are taught that the decidua reflexa is formed by the sprouting of the decidua vera over the ovum and covering it. Now I looked for the decidua reflexa, but could not find the slightest trace of it. The surface where the ovum was situated was of the same nature as everywhere, and, after careful removal of the vesicle, nobody could tell, without microscopic examination, where the ovum had been situated.

The objection could be made that this was an exceptional case on account of the ovum being fixed in the intrauterine portion of the tube, and that the decidua reflexa was not developed. But the lining membrane in both intrauterine portions of the tubes was of the same nature and thickness as in the uterine cavity, so that there is no reasonable ground for such a supposition. Accustomed to Coste's theory on the formation of the decidua reflexa, I was at first much puzzled with this result. But as this case could by no means be explained by Coste's theory, I came to the conclusion that Coste's theory is erroneous.

I was confirmed in my conclusion by the following passage in Playfair's Midwifery, American edition, page 93, "According to the now generally accepted opinion of Coste, the mucous membrane at the base of the ovum begins to sprout around it, and gradually extends until it eventually completely covers the ovum, and forms the decidua reflexa. Coste describes under the name of the umbilicus a small depression at the most prominent part of the ovum where the closure of the decidua reflexa is effected. There are some objections to this theory, for no one has seen the decidua reflexa incomplete, and in the process of formation, and on examining its internal surface, that is the one furthest from the ovum, its microscopic appearance is identical with that of the inner surface of the decidua vera. To meet these difficulties, Weber and Goodsir, whose views have been adopted by Priestley, contended that the decidua reflexa is the primary lamina of the mucous membrane which, when the ovum enters the uterus, separates in two-thirds of its extent from the layers beneath it to adhere to the ovum; the remaining third remains attached and forms a centre of nutrition. According to this view, the decidua vera would be a subsequent growth over the separated portion, and the decidua serotina the portion of the primary lamina which remained attached. In this way, the fact of the opposed surfaces of the decidua vera and reflexa being identical in structure, would be accounted for. The difficulty which this theory is intended to meet does not seem so great as is supposed, for if, as is likely, it is only the epithelial or internal surface of the mucous membrane which sprouts over the ovum, and not its deeper layers, the facts of the case would be sufficiently met by Coste's views."

The objections to Weber and Goodsir's theory are that there is no need for such separation and attachment of one layer of the mucous membrane to the ovum, besides that an immense covering must be wasted on a very small ovum, as at the time when the villi are developed the surface of the lining membrane is so much larger than the ovum that two-thirds, even one-third, of the lining membrane would be far too large a covering for the small ovum. And then there is no cogent reason for assuming that the ovum must be covered by decidua reflexa, for the latter has no essential importance, as has been demonstrated in cases of abdominal pregnancy. Also in my case no decidua reflexa had been formed. Although it might seem presuming to build a theory upon a single case, I might be justified in doing so, as Coste's explanation of the decidua reflexa is merely theoretical, and nobody has yet seen the decidua reflexa in the process of formation. In all cases the supposed decidua reflexa was already formed.

My explanation as to the fixation of the ovum is the following: When the ovum has entered the uterus, the lining membrane of the latter is hypertrophied and tumefied, and thrown into folds so as to completely fill the uterine cavity. By this condition the ovum is prevented from descending to the lower part of the uterus, and becomes attached to some point near a Fallopian opening.

The villi sprout in every direction and very soon extend to the surrounding mucous membrane, but only the villi which meet the nearest fertile soil (the spot where the ovum is first attached) thrive, and the rest atrophy. It is believed that the growth of the villi is interfered with by the decidua reflexa, as they do not penetrate it; still, in abdominal pregnancy not all the villi retain their functions, but only those which have struck nutritious soil. This theory would also well account for cases of placenta succenturiata and double placenta.

What was supposed to be decidua vera and decidua reflexa is nothing but several layers of the mucous membrane. Physiological and pathological analogies warrant us in accepting such a conclusion. The mucous membrane has a remarkable regenerative power. At each menstrual period the superficial layer of the mucous membrane is shed during the continuance of the discharge. Occasionally a deep layer of the mucous membrane, in what is known as membranous dysmenorrhea, is exfoliated and thrown off, entire or piece-meal, and at the moment of delivery a separation of the whole mucous membrane, under the name of decidua, takes place.

EDITORIAL.

The recent suspension of the *Obstetrical Journal of Great Britain and Ireland* leaves that country without a journal devoted to this specialty. With the view to extending the circulation, already large, of The Journal of Obstetrics abroad, the Editor has secured the active co-operation of a number of the leading gynecologists of Great Britain, and has made arrangements by which a condensed report of the minutes of the London Obstetrical Society will appear in each number. The Editor is anxious to give to The Journal of Obstetrics an international character, and, while endeavoring to conform as much as practicable to the wishes and requirements of the profession in this country, he proposes to keep the Journal at a standard which will also increase its popularity abroad.

The thoroughly scientific character which the Editor has endeavored hitherto to give to the Journal will therefore be continued, and all hastily prepared and doubtful papers will be carefully excluded. With the view to varying the monotony inseparable from the perusal of long papers, which cannot be declined since the place for such articles is precisely a periodical of the size and nature of a quarterly, the Editor again calls for careful reports of interesting cases, and short practical observations, which can be rendered more valuable by a few epicritical remarks.

To contributors of long articles, the Editor would suggest the utility of summing up the conclusions arrived at in a few brief sentences at the end of the article. The busy practitioner will thereby be able to see at a glance what the article contains, and whether he cares to give it a careful perusal.

The success of the Department of Diseases of Children during the first year of its existence has been a source of gratification to the Editor, and he herewith desires to express his thanks to the gentlemen who have extended such substantial aid to that enterprise, and requests a continuance of the same in the future.

CORRESPONDENCE.

LARGE DOSES OF MORPHIA IN PUERPERAL ECLAMPSIA.

BY
C. C. P. CLARK, M.D.,
Oswego, N. Y.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS.

FROM a large number of communications which I have received on the treatment of puerperal eclampsia by morphine since the publication of my article on that subject in the July (1880) number of your JOURNAL, I select and beg you to publish the following. I select it because it so conclusively shows the great tolerance of that narcotic which exists in this disease. Full trial of this treatment will make it appear, I do not doubt, that it is as absolutely safe to give three grains of morphine by subcutaneous injection in puerperal convulsions as it is to administer a pint of whiskey in snake bite, or those enormous doses of the same narcotic that are constantly administered in peritonitis with no evil result. When obstetricians shall fearlessly follow out the rules that I laid down, this fell disease will cease to be a terror.

C. C. P. CLARK, M.D.

OSWEGO, N. Y., Dec. 26th, 1880.

GRAHAM'S, S. C., December, 1880.

DR. C. C. P. CLARK.

Dear Sir:—Feeling sure that the following cases will interest you, I send you a brief report.

CASE I.—On April 19th last, I was called to see Mrs. A., who, I was informed, had "been having fits" since early morning. Upon my arrival I found her to be very large, weight two hundred and twenty-five pounds, æt. 28, and in her third pregnancy.

I was informed by her friends and mother that she had been having convulsions since very early in the morning, it then being eight o'clock P.M., and that she had had about forty-five or fifty convulsions.

Of course I found temperature, pulse, and respiration as usual under such circumstances.

Having had many such cases in an experience of twenty-eight years, and having tried all the usual remedies recommended by our various standard authorities, American, English, and French, and never having experienced but very little, if any, benefit from such treatment, I resolved to try what virtue there was in large doses of sulph. morphia, hypodermically, and immediately administered at least one grain, which put a quietus upon the convulsions for two hours (she having had them every fifteen minutes before that), when she had another; I then administered one and a half grains, which again suspended the convulsions. Labor progressed as well as could have been expected, and she was safely delivered of a dead child at full term, and did not have another convulsion.

Case II.—August 26th, 1880, I was called to see Mrs. T., who I was informed was expected to be confined "very soon."

When I entered the room I found the patient (primipara, 20 years of age) in the first stage of labor.

This was about nine o'clock A.M., pains gradually became more severe, as should have been, and continued until twelve o'clock or midnight, when the patient informed me that she "saw a very large star," and in "both eyes."

I immediately took my seat by her, knowing she would in a few moments have a convulsion, and it was not one minute before she was in convulsions.

As soon as the convulsion was off, I inserted one and one-half grains of sulph. morphia, by weight, beneath the skin, just at the insertion of the deltoid muscle.

She had but one more convulsion at an interval of two hours, when I inserted two grains hypodermically; this put a complete quietus upon the convulsions, labor went on smoothly, and in one hour I delivered her of a fine male child, that is now living and doing well.

The mother recovered as rapidly as though she had never had a convulsion.

On returning home, and looking over The American Journal of Obstetrics, I saw that you had been using heroic doses of morphia, not only in puerperal eclampsia, but in epileptic convulsions. Your cases encouraged me in my new departure, and I felt that I had some of our most respectable physicians to back me in my experiments, and determined to make a little longer leap in the doses in my next case.

Case III.—It was only a few days before I was called to see a young, large, and robust primipara, who was in convulsions, by her family physician, Dr. S. H. Tindal, who informed me that he had given her hypodermically about one-fourth grain of sulph. morphia; I told him to give her immediately two grains by weight, and be sure not to guess at it. He seemed to hesitate; I told him I would take all the responsibility.

The dose of two grains was administered, which suspended the convulsions for three hours, when she had another attack. I directed him to administer two grains again, which he did; labor went on fairly and well, and she was delivered in an hour or two of a still-born child, which it took me one hour to resuscitate.

Patient recovered without an untoward symptom, and both mother and child are now in the best possible health.

I will add that temperature, pulse, and respiration were good, and no cyanotic appearance whatever occurred.

CASE IV.—Colored woman, primipara, 20 years old, who had had some dozen or more convulsions before my arrival. She, too, was in the condition that women usually are under the circumstances. I was not in her chamber more than twenty minutes before she was in convulsions.

I administered my anti-eclampsia Sampson-morphia, in two-grain doses, at once, which put a stop to them for three hours, when she had another; I gave two more grains hypodermically again, which put a complete and final quietus upon the convulsions.

This was about twelve o'clock M.: I left my patient for five hours, returned and found her in profound sleep. I left her again until the following morning, when I found her sitting up in bed, laughing and talking with her mother and friends.

This was Sunday morning, and she did not have the slightest untoward symptom, and was delivered on the following Tuesday of a fine, large boy. The patient recovered as rapidly as though she had never had convulsions.

It is true, I have only had four cases of puerperal eclampsia treated by these heroic doses of morphia, but not one of the four died, and all recovered very rapidly. I heartily concur with you in the heroic use of morphia in the above disease.

I had the pleasure, on the 17th of this month, of exchanging opinions with Prof. Ford, of Augusta, in regard to the treatment of puerperal eclampsia. He informed me that he had been in the habit of using morphia in small doses in such cases, but had never used it so heroically as I had done, but that in his next case he would certainly use it in two-grain doses. He also informed me that Dr. Campbell, of Augusta, still pursues the old course of treatment in such cases, viz., venesection, purging, counter-irritants, etc. Yours truly,

C. P. FAUST, M.D.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF NEW YORK.

Stated Meeting, April 20th, 1880.

Dr. Wm. T. Lusk, *President, in the Chair.*

DOUBLE OÖPHORECTOMY.

Dr. B. F. Dawson presented two ovaries removed from a patient, with the following history: About three months ago, he was requested by Dr. Caldwell to see a woman twenty-six years of age, who was suffering intensely from pelvic neuralgia. She began to menstruate when fifteen, and her first period was more than ordinarily painful. Her menses continued without special change for two years, when, without apparent cause, the pain began to increase, both in severity and duration. For three or four years she suffered acutely at each menstrual epoch, and finally resorted to medical treatment, consisting chiefly of sedatives and narcotics. She immigrated to this county soon after, and about two years ago her menstrual pain had increased to such an extent that for two weeks at each monthly period she was completely incapacitated for work. Up to one year ago, she had not been under any special plan of treatment, but in the mean time had used opium freely. When she first came under Dr. Dawson's observation, she looked healthy, complained of fainting fits which, evidently, were epileptiform attacks, was exceedingly nervous, and was accustomed to the use of opium in large doses. Thirty minims of Magendie's solution simply produced a quieting effect, without entirely relieving the pain. Twenty minims of Magendie, followed in five hours by twenty drops of McMunn's elixir, which was repeated at the end of the next five hours, gave relief, but not complete. On examination, nothing special was noticed with reference to the ovaries, except that they were extremely sensitive. Dr. Thomas saw the case, and pronounced it one that called for operative interference, and Drs. Noeggerath and C. C. Lee sustained that opinion. The patient desired to have the operation performed. On April 8th, at 10.15 a.m., Dr. Dawson performed abdominal section, making an incision about three and a half inches in length: he had no difficulty in reaching the ovaries, took the left one out, secured it with a ligature, and cut it away with Pacquelin's cautery. The right ovary was secured in the same manner, and removed with scissors: it was slightly cystic. The pedicle in each instance was quite broad; the Fallopian tubes and the peritoneum presented a perfectly healthy appearance; the abdominal cavity was cleansed, and the incision closed in the usual manner. The operation was done under antiseptic spray.

The after-treatment consisted chiefly in good nourishment, and the use of moderate doses of opium. Recovery was somewhat interrupted by the occurrence of menstruation ten days before the regular time, on the third day. During the flow the temperature went up to 103°, but averaged 101°. On the seventh day the wound was united, and on the tenth day the sutures were removed. On the twelfth day (April 20th) she had no pain, her appetite was good, and she met the doctor at the door of the room. The opium had been discontinued entirely. Dr. Dawson regarded the bloody discharge from the vagina as menstrual fluid, and not a metrostaxis that frequently occurs after ovariotomy.

Dr. Chas. C. Lee remarked that, in one respect, the case was deceptive; for, in examining per vaginam, a feel as though the right ovary was adherent was obtained so distinctly that he remarked that probably it was adherent, and, therefore, difficulty would be encountered in its removal. When the operation was performed, not the slightest difficulty was experienced in bringing the ovary through the abdominal opening. It was a point which had a bearing on the question as to whether or not, in a given case, the operation should be performed; for if the ovaries appear to be adherent it is a fair argument against the operation, because of the difficulty likely to be encountered in the procedure. In this case, however, the ordinary test failed.

Dr. T. A. Emmet thought it would have been good practice to have broken up the opium habit before resorting to the operation; for, certainly anemia is one of the results of opium eating, and in that anemic condition neuralgia not infrequently develops, and it might centre in the ovaries as well as any other part of the body. He should look with great interest for the result in the case at the end of six months, to know whether or not the pain had returned.

[At a subsequent meeting (Nov. 16th, 1880) Dr. Dawson presented the patient now entirely recovered. She had gained fifteen pounds in weight, and was completely relieved of the neuralgic pains for which the operation was performed. She had not taken opium since the operation, and was able to enjoy life. She had a show at two menstrual periods after the operation, but none afterwards.

Dr. C. C. Lee stated that he saw the patient prior to the operation, and regarded her case as one that justified any surgical procedure compatible with the ordinary regard for life. It was the most successfully conducted case of Battey's operation he had ever witnessed.

Dr. Dawson then read Dr. Garrigues' report of his microscopical examination of the ovaries; and it was that both ovaries had already undergone cystic degeneration. In the right ovary the change was very marked, and it was also evident that the cysts originated in the Graafian follicles.]

UTERINE FIBROID REMOVED BY THE GALVANO-CAUTERY.

Dr. Dawson also presented a fibrous tumor of the uterus with the following history: The tumor was easily recognized by vaginal examination. Two tents were introduced into the cervix, and it was proposed to operate on the following day. Unfortunately one of the tents slipped into the cavity and the other out, and the cervix was not dilated to a diameter greater than that of a silver quarter of a dollar. The uterus measured five and a half inches, the tumor was pedunculated, and it was evident that it could be removed easily with a loop. The patient was anemic, and the operation seemed necessary to prevent further loss of blood. Dr. Dawson divided the cervix laterally with a knife, carried the wire loop into the uterus, around the pedicle, attached it to the battery, and cut through the pedicle slowly. The pedicle was quite small, and the tumor was delivered without forceps. On the next day, the uterus measured two and a half inches. The patient made a rapid recovery, and the specimen was interesting, as showing the great facility with which certain tumors can be removed with the galvano-cautery wire.

PORRO'S OPERATION.

The President remarked that Dr. Isaac E. Taylor was the first who had performed Porro's operation successfully in this country, and invited him to furnish the Society with a history of the case and present the specimen.

Dr. Taylor gave the following history of his case: Mrs. Valentine, æt. twenty-nine years, of good constitution and strong nervous element, was four feet four and a half inches high, the defect in height being consequent upon kyphosis and slight scoliosis. Her pelvis was kyphotic, and had the greatest antero-posterior diameter at the superior strait that had been recorded—probably five and a half inches. At the inferior strait, the distance between the tubera ischii ($1\frac{7}{8}$ inches) placed the pelvis among the four smallest, two being 1⅞ inches, one 1⅜ inches, and one ½ inch, through which delivery had been attempted.

Five years ago he delivered the same woman, by craniotomy, of a child that weighed eleven pounds. The time occupied was forty-five minutes; and no accident occurred, either during or after delivery. Again becoming pregnant, she determined to take whatever risks might be necessary for the sake of having a living child. She was told that the chances of recovery were about one half in her favor, and that probably the child would not be delivered alive. Utero-gestation went on; and on the evening of April 8th Dr. Taylor saw her, when she was having pains at intervals of an hour or more. On the following morning, the pains were more frequent, the intervals being only about three-quarters of an hour. At 3 o'clock P.M., the neck of the uterus was not at all dilated. Dr. Taylor thought it advisable to effect delivery early in labor; and accordingly the woman was put under the influence of ether at that hour, and he proceeded with the operation. From the time the first incision was begun, until a ligature was thrown around the neck of the uterus, was *ten* minutes. The hemorrhage was profuse. The uterine wall was quite thin; and when the child was removed from the cavity it almost instantaneously breathed. The placenta was allowed to remain untouched. A piece of strong fishing line was first thrown about the neck of the uterus for the purpose of controlling the hemorrhage, and that was followed by a double silk carbolized ligature; and when secured, the uterus was removed containing the placenta. After the permanent ligature was applied, a retraction took place, more particularly upon the left side. The hemorrhage from the upper portion of the broad ligament was arrested with considerable difficulty, the bleeding surface being secured finally with the cobbler's stitch. The same stitch was applied to the left half of what remained of the uterus.

There was no hemorrhage into Douglas' space. The abdomen was cleansed, and the abdominal incision closed in the usual manner. The patient remained upon the table about two hours before she was placed in bed. At 8 P.M., her pulse was 116, and respiration 30. Her food was milk and lime-water. At 10 P.M., pulse 112, respiration 30, and temperature 100° F. At 4 A.M. the following morning, her pulse was 114, respiration 30, and temperature 100° F. Dr. Taylor believed it to be advisable to keep the bladder empty, and accordingly a catheter was introduced and two ounces of urine removed.

On the second day, her pulse at 7.30 A.M. was 108, respiration 18, and temperature 100° F. The case continued to progress favorably. On the sixth, the sutures were removed. There was slight superficial gaping of the wound, and suspecting that it was influenced unfavorably by carbolic acid, the carbolic solution was set aside and balsam of Peru substituted.

The case was especially interesting in the following particulars: The decision and courage of the woman. The performance of the operation early in labor. It was the first case in which the pedicle had been dropped in this operation. He regarded the clamp as objectionable. The specimen showed that there is an intermediate structure between the body and the neck of the uterus; and that the muscular fibres do not reach from the body to the cervix of the uterus in such a manner that they aid in the process of dilatation. The question of unsexing the woman had been suggested to him as a possible one in medical jurisprudence. The specimen exhibited consisted of the body of the uterus, with the placenta and umbilical cord and the left ovary.

Dr. Mundé remarked that the woman was not unsexed in Dr. Taylor's case, because one ovary was allowed to remain.

Dr. Taylor thought it altogether improbable that the woman, not having any uterus, could ever bear any more children.

The President referred to a case reported by Kœberlé, in which a woman, whose uterus alone had been removed, became pregnant, and was delivered of a child; showing that removal of the uterus does not necessarily prevent pregnancy.

In a similar case, if called upon, he should endeavor to repeat the operation as performed by Dr. Taylor, with a few modifications. He should use Cintrat's constrictor to control the hemorrhage temporarily, and use the cobbler's stitch underneath. He thought that method would have prevented considerable of the hemorrhage that occurred.

As soon as the child was removed from the uterus, the woman became excessively anemic, and Dr. Gillette injected brandy directly into the jugular veins; but Dr. Lusk thought that the collapse was due to sudden removal of pressure from the abdominal vessels, rather than to the hemorrhage. He should propose, therefore, that pressure be made upon the aorta at the time the child is removed, hoping thereby to prevent a sudden recession of blood from the brain, and perhaps fatal collapse.

At the time Dr. Taylor performed the operation, he was opposed to dropping the pedicle, but the result had been so satisfactory that he should follow the example in a similar operation.

Dr. Gillette thought that the condition of pulselessness occurred before the child was delivered. At the time the incision was made through the walls of the uterus, considerable hemorrhage occurred, and at that time the pulse disappeared. It was then that he gave hypodermics of brandy as much as possible. He attributed the collapse to the loss of blood.

The President remarked that the specimen was interesting, especially with reference to the so-called intermediate portion of the uterus. So far, in the discussion upon that point, the weight of anatomical evidence seemed to be about equal upon both sides; but the clinical evidence was undoubtedly in favor of the view that this portion belongs to the body of the uterus and not to the cervix.

Dr. Gillette remarked that the dangers of the operation were much greater than those of laparo-elytrotomy, and, besides, he should prefer an operation which preserves the sex of the patient. He could not conceive of so dangerous a hemorrhage occurring with laparo-elytrotomy as took place in Dr. Taylor's case. At one time pulsation in the carotids was lost. Laparo-elytrotomy gave opportunity to deliver two living children, perhaps more, and that led him to speak of the patient upon whom he performed laparo-elytrotomy last November. The prospect was that opportunity for some form of operation would be again offered, and the question was, what shall be done? Shall the process of utero-gestation be arrested, or shall laparo-elytrotomy be again performed? If laparo-elytrotomy is selected, upon which side shall it be done? He thought he should not hesitate to go through the old cicatrix, rather than to operate upon the left side.

Dr. Taylor thought that the operation which he performed was the more desirable of the two, and he was free to confess that the series of operations in Dr. Gillette's case, forceps, craniotomy, the use of the cephalotribe, and version, really induced him to perform the operation which he did.

Dr. Gillette thought that the two cases were not at all comparable. In his case the child had been dead for a week, the cervix was dry and partially dilated, the child was emphysematous, and the uterus was in a condition of spastic rigidity; all being circumstances which give us the most difficulty in delivery, even without contracted pelvis; whereas in Dr. Taylor's case the child was living, the waters were undischarged, and the woman was operated upon early.

So far as the uterus and its neck was concerned, he did no damage to that at all; and his only difficulty arose from the tonic contraction of the uterus upon the fetus.

Dr. H. J. Garrigues referred to a case reported by Péan, in which the uterus was removed with a fibroid, and the operation was successful, but the patient subsequently suffered because the ovaries were allowed to remain. With reference to a second laparo-elytrotomy upon the same person, he thought it impossible to repeat the operation upon the same side, for the loose cellular tissue and all the parts become so consolidated as the result of the first operation that he could not understand how it would be possible to get to the vagina without opening the peritoneum. On the other hand, he saw no objection to operating upon the left side, for plenty of room could be secured to take out even a full-grown child. After laparo-elytrotomy had been performed twice, he thought there was no operation remaining except Porro's.

The President thought there should be no rivalry between the two operations. He believed it would be found that each has its special limitations, and that both methods would enable us to do away with the dangers of the older operations.

Dr. Harrison referred to a case reported by Breisky, in which the patient fell into collapse as in Dr. Taylor's case. The operator applied Cintrat's constrictor. It was after the application of the instrument that the collapse occurred, and he was disposed to attribute it to the effect produced by the chloroform.

Dr. Taylor remarked that ether was purposely used in his case in order to avoid such an accident.

[The patient did exceedingly well until the 17th day, when symptoms of lymphangitis, similar to phlegmasia dolens, showed themselves in the right leg. In spite of positive directions to remain quiet, she arose and moved about, and suddenly fell dead on the 26th day, doubtless from cardiac thrombosis. An autopsy was not obtained.]

HERNIA FOLLOWING THE WITHDRAWAL OF A DRAINAGE TUBE.

The President reported a case as follows: About eighteen months ago he performed ovariotomy, put in a drainage tube, the patient recovered without a bad symptom, and went home. A year afterwards she came to the hospital and reported herself as in first-rate condition. Six months later, she returned with an abdominal hernia, which had appeared at the place where the drainage tube had been inserted. The hernia was replaced, an abdominal bandage applied, and the woman was made comfortable. The question arose, was such a result unprecedented?

Dr. C. S. Ward referred to a case in which two drainage tubes were used, and a hernia subsequently developed at the point at which they were inserted.

Dr. Gillette referred to a case in which the patient, a Bohemian woman, was operated upon at St. Francis Hospital, for removal of an ovarian tumor, three years ago. About eighteen months after the operation, the recti muscles began to separate, the intestines began to protrude, and finally the coverings ruptured, and about ten inches of the intestines came out upon the abdominal wall. Dr. Kingsley, house surgeon, sponged them off, returned them to the abdominal cavity, put in some stitches, and the woman made a good recovery.

Dr. T. A. Emmet thought that the accident could be always avoided by putting in a suture at some distance from the edges of the wound, at the point where the drainage tube is inserted, and then twisting it so as to bring the peritoneal surfaces in contact with each other after the removal of the tube. He thought the accident occurred only when the peritoneal surfaces failed to unite.

Dr. Ward remarked that, in the case to which he had referred, the operation was performed by Dr. Thomas, and a point upon which he always exercised great caution was to secure complete coaptation of the peritoneal surfaces.

DR. EMMET remarked that he could not recall a case in which the accident had occurred where pains were taken to embrace the peritoneum in the suture, but previous to that method of closing the wound he knew of several cases in which the accident occurred.

REVIEWS.

A PRACTICAL TREATISE ON THE DISEASES OF WOMEN. By T. GAILLARD THOMAS, M.D. Fifth edition. Philadelphia: Henry C. Lea's Sons & Co., 1880, pp. 806, with 266 illustrations.

A consideration of the merits of a book properly falls under two divisions—that which includes the subject-matter, its facts and conclusions, and that which includes the manner, form, and literary execution. Clearly, in a practical, didactic book, such as this purports to be, the subject-matter is by far the more important, and upon this chiefly depends the judgment of the serious reader. In the author's preface is the declaration that "he has devoted two years of labor to the endeavor to bring this edition to the level of the present state of the science of which it treats." We shall, first, therefore, examine its contents from the standpoint of its facts and conclusions, which implies a consideration, not only of what it does, but also of what it does not contain.

Chapter I., "Historical Sketch of Gynecology."—This chapter is a clear and concise résumé of the history of gynecology, especially the ancient; but older and quite as completely classified historical sketches are extant in the modern languages, one of the most notable of which is the first chapter of a book which was, in advance of its time, entitled "Uterine Disorders," by Henry G. Wright, M.D., M.R.C.P., a scholarly and painstaking writer, who died soon after the publication of his book in 1867.

Chapter II., "The Etiology of Diseases Peculiar to Women." *Chapter III.*, "General Considerations upon Uterine Pathology and Treatment." *Chapter IV.*, "General Considerations upon Some of the Most Important Therapeutic Resources in Gynecology." *Chapter V.*, "Diagnosis of Diseases of the Female Genital Organs."—The above-named four chapters are practical, clear, and convincing. The general considerations of uterine pathology are discussed in a judicial manner. The diagnostic conclusions are drawn in view of all the phenomena, and care is taken to point out clearly the fault of being attracted and carried away by a symptom, when the diagnosis should proceed from the symptom group.

The prevailing types of cylindrical and valve specula are described, evidently to satisfy the popular demand for these instruments, but the author properly rates them low as compared with Sims'. The reviewer would gladly have reason to question the accuracy of a prediction which the author reluctantly makes, that Sims' speculum "can never come into general use," but the blindness, conservativeness, or mental defects of the majority, who, on superficial examination of the instrument, see only the seemingly difficult details of its use, so thoroughly stand in its way that he is forced to entertain rather than question the prediction, though convinced that the non-use of Sims' speculum to-day constitutes the greatest bar to the general and efficient education of the profession in gynecology.

Simpson's sound is judiciously mentioned as a dangerous instrument, but the student is left in the dark respecting its peculiar dangers, and the contra-indications for its use. Mobility of the uterus is the last of a list of five facts which are named as ascertainable by the sound. Just here, the author should have explained that immobility, dependent upon cellulitis or peritonitis, if discovered by the sound, would be so discovered at the risk of the patient's life, and that such mobility is safely and more definitely ascertainable by the touch. Sims' light copper sound is figured as, in most respects, a more useful instrument, on account of its pliability. To the statement that it is "certainly safe" and "painless," exception may be taken. The Sims sound is yet too heavy to be "*certainly safe*," especially in cases of old cellulitis and peritonitis. The fine, very pliable, silver probe of Emmet is, however, approximately safe, and, in a skilful hand, is more efficient, for most purposes, than any sound. Of this probe no mention is made. The subject of dilatation by tents is presented with conservatism and wisdom.

Chapter VI., "Congenital and Infantile Malformation of the Female Sexual Organs." *Chapter VII.*, "Diseases of the Vulva." *Chapter VIII.*, "Pruritis Vulvæ."—This chapter deals also with hyperesthesia of the vulva, irritable urethral caruncle, prolapsus urethræ, and coccyodynia. Among the predisposing causes of pruritis are named both "uterine disease" and "tumors of the uterus." Shall we, therefore, infer that tumor may exist in the uterus and not constitute disease of that organ, or shall we, rather, insist upon the introduction of the latter as a subdivision of uterine disease, and consequently upon a condensation of the table of causes? The question is raised, though not answered: "Is pruritus vulvæ a true neurosis?" We answer this question by asking another: What is a true neurosis, and does this imply the existence of a false neurosis, or was *pure* neurosis meant? Pruritus vulvæ is defined (page 138) as an "irritability" or "hyperesthesia" of the vulva. In another independent section of this chapter (page 145), "hyperesthesia of the vulva" is defined as "an excessive sensibility of the nerves." Now follows a pathological curiosity, which is: "No pruritus attends the condition of hyperesthesia." On page 146 is a psychiatrical curiosity. The author here mentions a state, bordering on monomania, in which all the thoughts are absorbed by hyperesthesia of the vulva.

In the differential diagnosis of irritable urethral caruncle, no allusion is made to inflammation of two important glands of the female urethra, described by Dr. Skene, April, 1880, in The American Journal of Obstetrics. Indeed, the entire subject of these glands is omitted. The psychical element of coccyodynia is entirely ignored.

Chapter IX., "The Female Perineum: Its Anatomy and Pathology." *Chapter X.*, "Prolapse of the Vagina, Bladder, Rectum, and Intestines." *Chapter XI.*, "Surgical Means Adapted to Restoration of the Perineal Body."—These three chapters are subdivisions of a subject, the importance of which is so great and so carelessly considered by the general profession, and by many gynecologists, that a critical and extended review is demanded. Although in certain parts faulty, the author's presentation of this subject ranks far above all others, with the exception of Emmet's contributions, from which much material, with due credit, is taken.

The usual pernicious faults in the descriptive anatomy of the female perineum are noted and illustrated by a diagram (Fig. 41), not unlike that which disgraces Gray's and other popular works on anatomy. The author pertinently remarks: "Present to the student a hypothetical, supposititious diagram of the female perineum, such as that seen in Fig. 41, and one can readily look with charity upon his regarding it as a part of little importance, and pardon the young practitioner who talks flippantly about the triviality of its rupture, and is apathetic at the bedside as to prevention of the accident." This diagram shows the vagina fully distended, and not collapsed with its anterior wall resting on its posterior, as may be proved by the study of Henle to be the natural relation. It shows a rudimentary perineum having such relations, or, rather, lack of relations, that it could not possibly be presumed to fulfil its function as a basis of support, either for the bladder or rectum. Other diagrams are then introduced, which have radical faults relative to the position of the uterus (these will be noticed in the review of the chapter on displacements), but which correctly illustrate the relations and form of the perineum and vaginal walls. The functions of this large, triangular perineum of nature are described as follows:

> I. It sustains the anterior wall of the rectum and prevents a prolapse of this, which would inevitably drag downwards the upper vaginal concavity, and with it the cervix uteri, and destroy the equilibrium of the uterus. II. It sustains the posterior vaginal wall and prevents a prolapse of this, which would allow of rectocele. III. Upon the posterior vaginal wall rests the anterior; upon this, the bladder, and against the bladder, the uterus, all of which depend, in great degree, for support upon the perineal body. IV. It preserves a proper line of projection of the contents of bladder and rectum, and thus prevents the occurrence of tenesmus, a frequent cause of pelvic displacements.

This description is clearly illustrated by means of several ingenious, though exaggerated drawings. The not uncommon objection to perineorrhaphy for displacements, that the perineum does not support the uterus, therefore is untenable. The perineum is not said to do this except indirectly, but supports the walls of the vagina, especially the anterior, which rest directly upon it, and tend to fall in cystocele when any part of this support has been lost, and, in falling, tend to drag along with them the uterus, to which they are attached.

The importance of this subject is not liable to be over-estimated. The author declares that "destruction of the function and power of the perineal body more frequently than anything else induces anterior and posterior displacements of the uterus and prolapsus in its three degrees." This statement is perhaps too sweeping in respect of the anterior displacements, since they are very common in women who have never been pregnant. He properly urges the wisdom of the immediate operation.

The operation of anterior elytrorrhaphy occupies considerable space, but its presentation is not without radical faults. Exception should be taken to the impression made by the text—that the object of the operation is to "constrict the vagina so as to limit its calibre." Constriction is rather an incidental feature of elytrorrhaphy, as properly understood. The author's declaration, that "it is a mischievous error to describe the operation as one performed for prolapsus uteri," is both right and wrong. It is wrong to suppose it a *permanent* cure for prolapse. The operation, in cases of procidentia, has for its chief object the *temporary* support of the uterus, to be relied upon, however, only until permanent support can be secured by a closure of the perineum, which, in these cases, is almost always ruptured or relaxed.

If the ruptured perineum can be restored before sufficient time has elapsed for cystocele and consequent procidentia, then manifestly the perineum has been closed specially to prevent these accidents, but if they have occurred, then elytrorrhaphy has for its object the restoration of that same condition which existed immediately after the rupture; in other words, to prepare the way for perineorrhaphy, so that it may be done under precisely the same conditions which existed immediately after the rupture. Sims' elytrorrhaphy, or its simpler modification by Emmet, restores these conditions, but the author's presentation of it is so vague that it conveys little idea of how or why this should be done. Moreover, the simple constriction of the vagina by oval denudation, a performance recommended by the author on page 180, as a substitute for the Sims-Emmet operation, and as equally efficient, simply disposes of the redundant vaginal tissue, but does not restore the uterus to its position. In order that this review may do for the reader what the author has completely failed to do, let us further consider the essential object of the Sims-Emmet operation. An appreciative representation of the operation would explain that the uterus is first to be replaced to its normal position,[1] so that the cervix may be within about an inch from that part of the hollow of the sacrum where the utero-sacral ligaments are attached. The operation, then, consists of two stages. The first has for its object the retention of the cervix in this natural position, which makes the body fall forward into normal anteversion. The second and remaining stage of the operation is of minor importance, and, in all essential respects, corresponds to the entire operation of oval denudation (Fig. 55) recommended by the author.

The author may, then, be criticised as having judged the Sims-Emmet operation unfavorably, omitting, not only to explain the object of its most essential feature. but even leaving it almost certainly to be understood by those not fully informed that Drs. Sims and Emmet really devised it for the sole purpose of constricting the vagina, and that, since the operation does not "constrict the vagina" more successfully than the one performed by himself, it, therefore, is destitute of any essential feature whatever.

In order, presumably, that the consideration of elytrorrhaphy may appear more nearly complete, and that the book may be brought "to the level of the science of which it treats" (see preface), the operation for procidentia of M. Léon Lefort is described in a single paragraph, which is a literal translation from the French. The author's observation on this operation is unassailable. He says merely that it "seems to have a future before it." But what operation has no future? The readers of this practical book will perhaps be harassed with doubts respecting the exact character of this "future," and since the author is silent. it may be said that its "future" will be that of an operation which unnecessarily obliterates the vagina. Although easier to perform than Emmet's or Sims', it is not more efficient, if the latter be promptly followed by successful perineorrhaphy.

The author's description of the operation for old rupture of the perineum presents some features to condemn and others to praise. Figure 63 represents the posterior wall of the vagina as being three times as long as the uterine canal, *i. e.*, seven and one-half inches; figure 68, as being four times as long, *i. e.*, ten inches. In figure 64, the area of denudation is inadequate, by as much as it does not extend further back on the posterior vaginal wall. The responsibility for this might be transferred from the author to the artist, on the ground of defective foreshortening, had not the former fastened it upon himself in figures 65 and 66, which are simply diagrams representing the same denudation, and therefore can have no foreshortening. That the perineal body is approximately an equilateral triangle, we have (Fig. 62) the authority of the author. Therefore, figure 65, intended to represent one of the two denuded triangular surfaces, which are to be brought face to face with sutures for the restoration of the perineal body, should also correspond approximately to a section in the median plane of a correct perineum, which section is an equilateral triangle ; but it does not do this, nor can it, unless the denudation be extended further back on the posterior vaginal wall than is shown in figure 64. Such meagre denudation is open to the objection that it would make a thin, yielding perineum, similar in kind, though not equal in degree to that represented in the author's figure 58, which is intended to illustrate a "perineum imperfectly repaired."

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[1] For normal position of the uterus. see the review of Chapter XXV.

A strange lack of harmony exists between the text on page 197, figure 67 and figure 68. All three are introduced to explain the same thing, the method of suture, but each explains, or fails to explain, a different thing.

The text reads : "All these (sutures) are concealed from view, except the last one or two, which should pass under the upper angles of the triangle, and, catching up the vaginal tissue at the highest point of denudation, should bring them all together."

Figure 67 shows the last suture simply to pass under the "upper angles," and not to catch up the "highest point of denudation," while the next to the last is entirely concealed in the tissues.

Figure 68 leaves it uncertain whether the last one or two sutures are really concealed from view or not.

The text contradicts figures 67 and 68. Figure 67 contradicts the text and figure 68 ; and figure 68 contradicts the text and figure 67, and the question arises : How is this operation to be done?

Jenks' operation of colpo-perineorrhaphy is mentioned with a cut, and called "ingenious." Faint praise !

Chapter XII., "Vaginismus." *Chapter XIII.*, "Vaginitis." *Chapter XIV.*, "Atresia of the Genital Tract and Retention in it of Menstrual Blood and other Fluids."—The interest of the subject of atresia, at the present, centres in the selection of the safest method for reaching and removing retained menstrual fluid. The two chief methods of operation are noticed on page 229, "that of Dupuytren (1818), which consists of breaking a passage by the finger, cutting obstructions which cannot thus be overcome, and syringing out the cavity afterwards, the whole operation being finished at one sitting ; and that of Amussat (1832), which consists of working with the finger and dull instruments, overcoming resistance by pressure rather than by incision, and completing the operation, not in one, but in several sittings." The author approves of the method of Dupuytren, and considers it the less dangerous. No mention is made of the published experience of Dr. Emmet in this operation, which has been very satisfactory and very large.

If a single criticism were to be made upon this chapter, it would be that the author has not in this connection appreciated the scope of modern antiseptic surgery. It is known that the completion of the operation at one sitting, and thorough washing out with warm carbolized water, is safer than the operation of several sittings. It is reasonable to assume that the increased safety depends upon the carbolized water ; that is, upon antiseptic practice. But simple washing out of the vagina and uterine canal at the time of their exposure, and occasionally during the few days following, is a very meagre application of the Lister method, which would demand the most scrupulous antiseptic precautions, not only during the operation, but such severe attention to the minute details of antiseptic dressings afterwards, that the danger from septic poisoning should be reduced to the minimum. Again, the book not only falls short of the level of the science of which it treats, but at this point fails to appreciate a great principle of surgical science.

Chapter XV., "Fistulæ of the Female Pelvic Organs." *Chapter XVI.*, "Fecal Fistulæ." *Chapters XVII.*, *XVIII.*, and *XIX.*, "Acute and Chronic Endometritis."—The subject of these three chapters is introduced by the following confession: "I freely confess that the arrangement of no subject treated of in this work has caused me more perplexity, and is offered to the reader with greater hesitancy, than that which relates to the divisions of endometritis." Since the author has forestalled criticism by this "confession," we pass on to the next subject with the remark that acute inflammation may perhaps leave the endometrium in a state of chronic congestion, but that it is very improbable whether it ever leaves it in a condition of chronic inflammation. Moreover, the entire symptom group, which the author attributes to chronic inflammation (so-called), may proceed from causes outside of the uterus, such, for example, as pelvic cellulitis, the importance of which in the causation of abnormal developments in the uterus is not very well brought out anywhere in this book. It would be an agreeable surprise if some writer on this subject would bring to its solution a little systematic work in the direction of exact scientific observation with the microscope. Too much dependence has been placed upon mere opinions and clinical observation. Accepting the author's arrangement of this subject as correct, which would be a grievous admission to make, the question forcibly arises whether his treatment of the subject from his own stand-point is not pregnant with faults, but we forbear making that criticism, for which we have not the space to prove its justice.

Chapter XX., "Areolar Hyperplasia of the Uterus—The so-called Chronic Parenchymatous Metritis."—In the commencement of this chapter the reader finds an enumeration of about all the symptoms which ever point to the existence of uterine disease, and of some symptoms which are so general that they specially point to nothing. These symptoms, we are told, the "more reflective and intelligent examiner" will group under the name of "chronic metritis." In the next paragraph we are told that such a diagnosis "would be fully sustained . . . by authority as abundant as it is orthodox, for by systematic writers, since the days of Récamier, this uterine state has been described as one of chronic parenchymatous metritis. Only within a very recent period have the pathologists of the German school begun to question the validity of this conclusion." Are we to conclude from the above that the modern German pathologists are deficient in the reflective and intellectual qualities? To discuss this chapter fairly would involve a consideration of all that has been included in the literature of uterine congestion and subinvolution, and would require more space than has been assigned to the entire review. In passing, however, certain observations may be made. Notice on page 320 the following declaration, which is a proposition in the summing up of the pathology of areolar hyperplasia:

"However produced, the condition (areolar hyperplasia) is one of vice of nutrition, engendering hyperplasia of connective tissue as its most striking feature, and although attended by many of the signs and symptoms of inflammation, it in no way partakes of the character of that process."

In the third proposition of the same summing up, persistent hyperemia is said to be one of the conditions associated with the production of areolar hyperplasia, but as areolar hyperplasia, according to the author, in no way partakes of the character of inflammation, we must conclude that the author does not regard hyperemia as in any way pertinent to inflammation. Two years of labor in revision ought to have shut out such looseness of ideas, but they have expression, not only throughout this entire chapter, but the work abounds in ambiguity and confusion. It is often possible in such expressions to divine the author's meaning by careful examination, but this always requires an amount of charity which is not demanded for the work of an eminent teacher.

Chapter XXI., "Granular and Cystic Degeneration of the Cervix."—Among the causes of cystic degeneration of the cervix, pre-eminently the most common cause, laceration and consequent eversion, is mentioned last and with the least prominence. Indeed, cystic degeneration must be almost, if not quite, pathognomonic of laceration. These cysts or ovula Nabothi, when found in contact with the vagina, must at least prove the existence of eversion of the intra-cervical membrane, in proof of which the following histologists are quoted:

"Lodged in the substance of these ridges (rugæ cervicis), *excepting only in the lower and smoother part of the cervical canal,* we discover the so-called mucous follicles of the cervix" (Stricker's Manual of Histology, Am. ed., p. 614).

"Not unfrequently these little pits (mucous follicles) become occluded, and in consequence distended with mucus. They then present themselves in the form of small round vessels, known as the ovula Nabothi" (Frey's Histology and Histo-Chemistry of Man, Am. ed., p. 514).

"These bodies (the ovula Nabothi) are even found on the outer surface of the vaginal portion of the uterus" (Stricker's Manual of Histology, Am. ed., pp. 614, 615).

If these follicles are normally found only within the cervical canal, it is clear that their presence in contact with the vaginal membrane must depend upon eversion, which can hardly occur to the extent of exposing the rugæ, except as the result of laceration, or of some other decided mechanical injury. Stricker finds the cysts or "ovula Nabothi" "on the outer surface of the vaginal portion of the uterus," and concludes that they are distinct anatomical elements, although identical in structure; while Frey declares that the ovula Nabothi are simply occluded mucous follicles, which Stricker says do not exist on "the outer surface." I therefore cannot escape the suspicion that the investigations of Stricker's "ovula Nabothi" were made on the lacerated and everted cervix, not upon the virgin cervix. The author's text on this subject and the facts of the subject therefore do not coincide.

Chapter XXII., "Syphilitic Ulcer of the Cervix Uteri."—The conspicuous absence of all other so-called varieties of ulcer of the cervix is noticeable. This long cherished nonentity is no longer a stumbling-block in uterine pathology and therapeutics.

Chapter XXIII., "Uterine Fungosities." *Chapter XXIV.*, "Laceration of the Cervix Uteri."—This last chapter, although neither full nor explicit, is yet sound. The cicatricial plug, which Dr. Emmet regards as capable of producing neuralgia, and pain in distant parts of the body, is not mentioned. This is a serious omission, serious for the patient and serious for the author, because Dr. Emmet's views on the subject are not only supported by good *a priori* reasoning, but by a considerable amount of clinical evidence, and because failure to remove this cicatricial tissue in the operation may defeat many of the essential objects of trachelorrhaphy. Figure 135, as a work of art, is a failure; as an illustration it is a caricature. Its meaning is only to be determined by an exaggeration of the imagination. The denudation, as described by the author, is such as to leave the external os so small that in the involution, which generally follows this operation, the os would become much constricted. This is because the evolution, which follows trachelorrhaphy, pertains more particularly to those tissues adjacent to the os than to those which surround the inner portion of the cervical canal. Denudation, therefore, should be so made that the external os may have, when the operation is complete, a flaring or trumpet shape. In closing our remarks upon this chapter we advise any one unfamiliar with the subject to supplement his reading of this chapter by reference to the original literature.

Chapter XXV., "General Considerations upon Displacements of the Uterus." *Chapter XXVI.*, "Ascent and Descent of the Uterus." *Chapter XXVII.*, "Anterior Displacements of the Uterus." *Chapter XXVIII.*, "Posterior Displacements of the Uterus.—The first thing to be noticed in these chapters is Figure 139, which is introduced to illustrate the normal position of the uterus. In this figure the author makes the mistake which nearly all of his predecessors have made, *i. e.*, he places the uterus, not in a normal, but in an abnormal position, in proof of which we submit the following considerations: Dr. H. Webster Jones,[1] of Chicago, several years ago called attention to this same fault in the usual drawings of the female pelvic organs.

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[1] Chicago Medical Journal, January and April, 1870.

According to this picture, supposing it to be enlarged to the life size, the vesico-vaginal septum would be about two-thirds of an inch thick, the space between the urethra and the nearest part of the pubic bone would be nearly an inch in thickness, and the distended bladder about one and one-half inches in diameter. The rectum is represented as distended and as occupying at least one-third of the entire pelvis. But the most glaring defect relates to the position of the uterus. The cervix uteri is represented as swung about midway between the inner surface of the pubis and the hollow of the sacrum. Let us see how impossible this position must be. The average normal distance of the anterior wall of the cervix from the pubic bone is two and one-half inches, according to this plate the distance of the posterior wall of the cervix from the hollow of the sacrum is nearly as great. Add to these two measurements five-sixths of an inch, as the diameter of the cervix, then will the plate represent the antero-posterior diameter of the female pelvis as nearly six inches, instead of the true measurement, four and one-third inches. On the basis, therefore, of a measurement of four and one-third inches, the distance from the posterior wall of the cervix to the hollow of the sacrum may be considered as about one inch, the diameter of the cervix as five-sixths of an inch, and the distance from the anterior cervical wall to the outlet of the vagina or to the inferior extremity of the symphysis pubis as two and one-half inches. The sum of these measurements, which approximately are correct, equals the four and one-third inches.

Manifestly, if the cervix be in its normal position, about an inch from the hollow of the sacrum, retroversion must be impossible, because the sacrum, which arches over the uterus in this position, would prevent the body from turning back. It must, therefore, fall forward into anteversion, which, unless too much exaggerated, is its normal position. Therefore we may declare a general principle as follows: *The treatment of displacements of the uterus depends upon a correct appreciation of the fact that, if the cervix be placed in its normal position, the body of the uterus will, in the great majority of cases, take care of itself, at least, this is the great indication to be fulfilled.* Its fulfilment makes posterior versions impossible, and causes the entire uterus to be carried so far from the pubis that generally it cannot, even if unduly anteverted, act as a mechanical irritant upon the bladder, and cause those symptoms which are found in that condition. The general principle above enunciated very much simplifies our understanding of what the pessary should do. At once all of those pessaries, which are supposed in some way directly to prop up the body of the womb, become of questionable value; and the old Hodge pessary, or some simple modification thereof, stands out prominently as the rational instrument, because this, by crowding the posterior vaginal cul-de-sac backward toward the hollow of the sacrum, not only restores the normal relations of the vaginal walls, but also causes them to draw the cervix, to which they are attached, backward to its normal position in the hollow of the sacrum. All pessaries having external attachments especially fall into disrepute when considered in connection with this general principle; intrauterine stem-pessaries also lose much of their apparent importance. Many of the twenty varieties of pessaries, which are illustrated in this book with all of their accompanying machinery, cease to perplex the student and to distress the practitioner. Finally, it may be said that much of the confusion which surrounds this subject depends upon the very general, erroneous impression under which the author also labors respecting the normal position of the uterus.

The author's views relative to the importance and difficulty of relieving anterior displacements differ absolutely from those of other eminent gynecologists, many of whom discard all pessaries which press upon the anterior wall of the cervix. This subject bears upon the question of the extent to which anteversion may occur, and yet be physiological. Dr. Thomas regards any version which carries the axis of the uterus forward of the line of the superior strait as pathological, and as a probable indication for mechanical support. Reverting to a former statement that if the cervix be placed within an inch of the sacral attachment of the utero-sacral ligaments, so that the vaginal attachment shall be in a line between this point and the lower margin of the pubes, we repeat "*The body of the uterus will very generally take care of itself.*" This may be done, as we have before explained, by the ordinary Hodge pessary. Anteversion creates the most, at least, of its bad symptoms when the cervix is so near the pubes that the body, by turning forward, may impinge upon the bladder. In this position of the cervix, also, the entire organ has its location below the health level. It is rather the *mal-location* of the uterus than its exaggerated anterior *position* which creates the discomfort. Indeed, the same discomfort is apt to attend this location when the uterus is anteverted only to that extent which the author himself regards as physiological. Now, when the entire uterus, whether its anteversion be exaggerated or not, occupies this location near the pubes, any pessary which causes the cervix to be carried to its normal position in the hollow of the sacrum will give relief. All of these complicated anterior displacement-pessaries of the author give relief in this way rather than by propping up the body, as they are said to do. But we have not been able to observe that their results are in any way superior to those of the Hodge pessary, and they are certainly open to serious objections, which do not apply to that instrument. This statement is made, not without that extensive and careful trial which the author justly asks of any who may doubt their value. It may also be added that this trial was commenced with a predisposition in their favor, and that the observations have been made, not only in private practice, but also during a service of eighteen months at the Woman's Hospital, in the State of New York, where these pessaries were constantly being applied, subject to the author's own demonstration upon his own patients.

Chapter XXIX., "Inversion of the Uterus."—Thomas' operation for reposition of the inverted uterus by laparotomy should not be undertaken unless the surgeon has provided himself with a more efficient instrument for dilating the cervical ring than that devised by the author of the operation, which is like a glove-stretcher. This instrument stretches the tissues below the ring, rather than the ring itself. This was the experience of Drs. J. B. Murphy and Christian Fenger, in an operation performed recently in Chicago. They found the instrument useless, and were, therefore, under the necessity of improvising a substitute—a necessity which, under some circumstances, might occasion dangerous delay.

Chapter XXX., "Peri-Uterine Cellulitis." *Chapter XXXI.*, "Pelvic Peritonitis."—The great defect in these chapters are their failure to lay sufficient emphasis upon the influence of cellulitis in the causation of abnormal developments in other parts of the pelvis. They are, however, among the best in the book. Their points in diagnosis are particularly well made.

Chapter XXXII., "Pelvic Abscess." *Chapter XXXIII.*, "Pelvic Hematocele." *Chapter XXXIV.*, "Myo-fibromata or Fibroid Tumors of the Uterus."—On page 527, is the statement that nature, unaided, may effect a cure of fibroid tumors by any one of the following means: 1, Absorption or atrophy; 2, direct expulsion by rupture of attachment; 3, sloughing from deprivation of nutrition or inflammation; 4, calcareous degeneration; 5, gangrene. It should be remembered that absorption is a very dubious term, as applied to the disappearance of fibroids. It means little more than disappearance. "Sloughing," we are told, may be either from deprivation of nutrition or from inflammation; but how can inflammation cause sloughing except from deprivation of nutrition? What distinction could have existed in the author's mind between "gangrene" and "sloughing," which induced him to mention them as distinct parallel phenomena? Calcareous degeneration occurs only as an incidental stage of atrophy, and if named at all in this connection, should have been included under the subdivisions of that process.

The spoon-saw of Dr. Thomas, for the removal of fibroids, receives a more sanguine indorsement than is warranted by its success in other hands than his. From the author's enthusiastic remarks about this instrument might be drawn the dangerous impression that by its application the removal of fibroids becomes a very simple affair.

The same class of fibroids in which the spoon-saw, in the skilful hands of Dr. Thomas, accomplishes such brilliant results, may often be very efficiently removed by Emmet's method of traction; but the reader must again consult the original literature for a description of this method, because the paragraph of five lines on page 539 is not very explanatory. The author's idea that uterine fibroids are inclosed in a capsule is unsupported by good evidence.

Chapter XXXV., "Cysto-fibromata or Fibro-cystic Tumors of the Uterus." *Chapter XXXVI.*, "Uterine Polypi."[1]—These growths (page 558) are classified into—I., Cellular polypi; II., Glandular polypi; III., Fibrous polypi. Then follows the announcement that "these varieties are subject to morbid changes, which create other forms, as, for example, fatty, calcareous, and malignant polypi." Certainly a non-malignant polypus may become malignant; just as certainly, a polypus may be malignant from the first. But, according to the author, one might infer that all malignant polypi must previously have been non-malignant. According to the faulty classification above, a "cellular polypus" (which is also glandular, because it contains glands) is one distinct form of polypus, but is another form when it undergoes retrograde metamorphosis and becomes fatty or calcareous. The word "conditions" should be substituted for the word "forms."

We are told (page 538) that "the cellular polypus consists within of connective tissue in a state of hypertrophy or hypergenesis." This definition is incomprehensible. How is the hypertrophied state of the connective tissue in a polypus determined? And how does it differ from connective tissue which is not hypertrophied? As a predisposing cause of polypus is mentioned, "any obstruction to the escape of menstrual blood, which causes uterine tenesmus." How was this interesting fact ascertained?

Chapter XXXVII., "Sarcoma and Adenoma of the Uterus."—Sarcoma and cancer of the uterus (page 567), it is said, "sometimes unite in the same tumor." This is an exceedingly rare and interesting combination, not by any means as common as the author's word "sometimes" would indicate. Here is a confusion of ideas. "The time (page 567) has certainly arrived, however, when they (sarcoma and carcinoma) should be separated, both clinically and pathologically." Such a separation, if reliable, must in any case depend upon the microscope. Therefore, when the microscope has in some way made the clinical separation, it must perhaps find some other way in which to make the pathological. On page 568, the clinical separation is attempted. "These growths (sarcoma) are so rich in vessels that Virchow declares that this feature is characteristic of them. To this vascularity is due their tendency to give forth a watery flow, to bleed freely, and to absorb septic material." Now let us examine the diagnostic value of the above sentence. Why does not sarcoma of other parts of the body also give forth watery flow more than carcinoma? Every variety of vascular tumor, whether malignant or benign, is apt to bleed when the vessels break. Every part of the surface of the body, deprived of skin or epithelium, whether it be malignant or benign or not a tumor at all, is apt to absorb septic material, if the material be present to be absorbed. How, then, is all this characteristic of sarcoma? On the same page is mentioned a "diffuse fungus-like structure." In the latter half of the nineteenth century, the word "fungus-like" has no definite meaning when applied to sarcoma, because no one knows what in particular "fungus-like" is. Fungi differ among themselves very widely. What special fungus does Dr. Thomas find sarcoma to resemble? On page 570, read "*Differentiation;*" "Although these symptoms and physical signs will point strongly to the existence of sarcoma," etc. But his "symptoms and physical signs" also point strongly to carcinoma. Consequently they cannot point strongly to any one thing. Hence, pathologically! clinically!

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[1] Dr. Christian Fenger, of Chicago, at my request, has kindly examined that part of this book which relates to neoplasms. Most of the criticisms on the histology and pathology of tumors have been suggested by his marginal notes.

We dissent from the prognosis of Dr. Thomas, that sarcoma always ends fatally, whether it be removed or not. Certainly, after Freund's operation, it has not in some cases returned after long years. Practically speaking, then, sarcoma does not always return. Just here, again, is another confusion of ideas. "The fact that this disease is much less liable to return after removal than cancer, would recommend it (ablation of the uterus) more strongly than in that disorder, and if sarcoma were confined to the uterus, the prospect of success from operation would be far greater." How can Dr. Thomas reconcile this statement with the former one, that it "always returns," whether removed or not? If it "always returns," how can it be less liable to return than cancer, unless cancer has some way of returning more than always? What is meant by the words "if sarcoma were confined to the uterus?" Sarcoma of the uterus is generally so confined in its commencement.

Chapter XXXVIII., "Cancer of the Uterus."—Cancers are classified (page 573) under the following heads: "I. Scirrhus; Fibrous, or, Chronic Cancer. II. Encephaloid; or, Acute Cancer. III. Epithelioma; Cancroid, or, Epithelial Cancer." This classication is confusing, because chronic cancer may be epithelioma; encephaloid may be either sarcoma, or what is here called "epithelial cancer," and all cancers being epithelial, the name epithelioma is not necessary. The following quotation shows a striking difference between the experience of Rokitansky, who has made over thirty thousand autopsies, and that of the author:

> So rare is it to meet with the scirrhus form of uterine cancer, that some writers have doubted its existence. Rokitansky admits the possibility of its occurrence, but regards it as extremely uncommon. . . . I have met with several undoubted instances of it, to the history of one of which I shall make allusion. Dr. Treskatis brought to my clinic . . . a woman . . . suffering from leucorrhea and menorrhagia. Upon examination by touch, found the cervix very large and exceedingly hard and resisting. The speculum revealed no abrasion except two little points about the size of pin-heads, which bled freely when brushed with a sponge. From the facts that the patient had shown no previous symptoms of uterine disease, which could have resulted in areolar hyperplasia, that there was no intrauterine cause for menorrhagia discoverable, and that the hardness of the neck was excessive, I ventured upon the diagnosis of scirrhus cancer.

This was a bold venture, in view of the symptoms given. Dr. Thomas seems to have the erroneous idea that every malignant growth hard to the touch is a scirrhus. A cylindrical carcinoma is just as hard in the beginning. On the same page read:

> After the first or hard and fibrous stage of the disease has lasted for some time, prolific generation of cells occurs. These fill the alveolar spaces in the framework of connective tissue, which spaces burst and communicate with each other, and the whole mass grows large and soft. After still greater growth, these over-crowded cell-spaces open: the large vessels supplying them give forth blood freely, and ulceration becomes established.

Certain questions here arise as regards this "bursting" and "opening," but they are so patent to all pathologists who have looked at tumors through the microscope that we pass them by with the simple observation that ulceration of carcinoma and of all other growths takes place by fatty degeneration; that is, transformation into molecular detritus, and consequent death of all the different elements of the growth. On page 577 we are told that—

> Epithelial cancer differs greatly, both in anatomical and clinical features, from the forms just enumerated (scirrhus and encephaloid), and claims special consideration. Commencing by excessive generation of cells, which characterize the part upon which the morbid influence is excited, it develops itself always in connection with epithelial-covered surfaces—skin or mucous membrane. In some cases the stroma is very abundant; in others, it is almost entirely wanting. As the cells increase in this, they arrange themselves in epithelial brood-nests, or spaces. The importance of the distinction between this form of cancer and those previously mentioned is at present not as generally accepted as it was twenty years ago.

Now let us examine the author's great distinction between epithelial cancer and the forms just enumerated. In the alveola of carcinoma, hard and soft, acute and chronic, may be found epithelial cells of any shape and size, from the typical cylindrical cell lining the ducts of the normal mucous glands, or from the typical pavement epithelial cell lining, for instance, the mucous membrane of the vagina, down to the small round epithelial cell consisting of the characteristic oval nucleus, but only surrounded by a brim of protoplasm. It would, therefore, be interesting and new to science if Dr. Thomas would show the great anatomical and clinical difference. On page 578 it appears that, "in the commencement of each variety of malignant disease, the clinical differences would easily be recognized." The entire medical world would be gratified and surprised if the author would communicate his easy method of "recognizing" these differences. His scientific brethren have found this difficult, if not impossible.

On page 581 is something which requires explanation. "As the peritoneum in turn becomes invaded, peritonitis of a fatal type is excited." Does this mean perforation and consequent septic peritonitis or fatal peritonitis from involvement of the peritoneum in carcinomatous disease? If the latter, it is erroneous; if the former, the language is obscure. On page 591, in a footnote giving directions for the preservation of specimens for microscopic examination.

> It may be of service to practitioners, at a distance from cities in which competent microscopists reside, to state that in sending specimens for examination, the best preservative menstruum consists of glycerine, diluted with water. Alcohol, carbolic acid, and similar fluids contract and harden the structures to such an extent as to render them unfit for examination.

"A competent microscopist" would scarcely be obliged for specimens preserved in glycerine, as hardening is a prerequisite to examination.

Chapters XXXIX. to *XLVI.* inclusive represent the following subjects: "Diseases resulting from Retention and Alteration of the Fetal Envelopes; Dysmenorrhea; Menorrhagia and Metrorrhagia; Amenorrhea; Leucorrhea; Sterility; Amputation of the Neck of the Uterus; and Diseases of the Ovaries."—But this review has already exceeded the limit of space which has been assigned to it, and we are therefore compelled, though reluctantly, to leave these subjects and pass on to the more massive themes of ovarian tumors and ovariotomy.

Chapter XLVII., "Ovarian Tumors."—On page 678, the following startling advice is given for the treatment of cysto-carcinoma: "The operation (ovariotomy) is not so promising as in case of cystic degeneration, and should not be undertaken until the evil results of the disease and its tendency to destruction of life are fully manifested." The usual indication for operation in malignant tumors has previously been the good condition of the patient and the limited extent of the disease. But in this book, it appears, "*nous avons changé tout cela.*"

Chapter XLVIII., "Ovarian Cysts and Cystomata."—On page 696 ovarian cysts are said to produce death by exhaustion from "a low grade of gastritis, pleuritis, or enteritis." On page 709 we learn that "splenic and hepatic cysts . . . give an area of dulness between the tumor and the pelvis." "Dulness" should read resonance. On page 710 is the statement that "ovarian fluid never spontaneously coagulates." How can this be when ovarian fluid very often contains blood?

On page 716 is a statement relative to aspiration, which requires comment.

> Although it has been stated that aspiration is much less dangerous than tapping, it must not be regarded as free from danger. Death has repeatedly resulted from it, and it should be regarded as an axiom that all abstraction of fluid from an ovarian cyst, by whatever means it is acomplished, is attended by danger. The smaller the puncture made, however, the less the danger, I think. Cases of peritonitis, some of them fatal after aspiration, are recorded by Atlee, Little, Lusk, Mundé, Gillette, and Jenks; cases of decomposition of sac contents and septic fever are reported from the same cause by Goodell, Peruzzi, Schnetter, Skene, and myself; and a case of peritonitis and adhesions, after diagnostic puncture by a hypodermic needle, by Fauntleroy of Virginia.

It is to be regretted that, in the mention of these fatal cases, no allusion is made to the condition of the aspirator needle, because, if it was not thoroughly disinfected, decomposition of sac contents and septic fever, and death would be legitimate consequences, the responsibility for which should belong rather to the operator than to the operation. It is even more to be regretted that, in his description of the operations of aspiration and tapping, the author pays no heed to this vital precaution. Such omissions are not creditable to a practical book.

Chapter XLIX., "Ovariotomy."—On the dangers from ovariotomy the old tables of Dr. Peaslee, based upon post-mortem evidence of only fifty cases, are quoted, as also are those based upon one hundred and fifty cases analyzed by Dr. John Clay. In the former, twelve were said to have died from peritonitis and nine from septicemia. According to the latter, sixty-four died peritonitis and none from septicemia.

Mr. Thomas Keith, convinced that blood in the peritoneal cavity favors the development of septic material, has demonstrated that, by guarding the peritoneum against even the slightest hemorrhage before closing the wound, and by means of the other details of antiseptic surgery, the danger from septic peritonitis is reduced almost to zero, which means that the mortality of this operation, compared with its mortality as shown by the tables of Peaslee and Clay, is very small. Why then are these antiquated tables given in a practical book as an indication of the dangers of modern ovariotomy? Just as well might the statistics of Keith, Wells, Bantock, and Thornton, for 1880 be used as a basis for estimating the dangers of ovariotomy before the days of antiseptic surgery.

The question of the extra peritoneal treatment of the pedicle by the clamp, versus the intra-peritoneal treatment by ligature, says the author, must be referred to the "comparative results of those who do not return it (the pedicle) with those of other operators who do." Then follows an old, tabular analysis of "a large number of cases, given with reference to this point by Dr. J. Clay." This table was originally published before the dawn of antiseptic surgery. It may have been good evidence then, but now, in a practical book, it is not even ornamental. The uselessness of such statistics is indicated by the following from a paper by Dr. J. Marion Sims, published in this JOURNAL, April, 1880.

> Spencer-Wells was the great apostle of the clamp; he did more to popularize its use in the profession than any other man; he honestly believed that the extra-peritoneal method of securing the pedicle was the best and safest when practicable. As late as June and July, 1878, in his lectures before the Royal College of Surgeons, he brought forward statistics from his immense experience to prove that the best treatment of the pedicle was by the clamp, and the worst by the ligature; as the mortality attending the latter far exceeded that of the former. But Listerism has killed the clamp, and even Spencer-Wells uses it no longer; or so rarely as to make its use quite exceptional. He uses the intra-peritoneal ligature, cutting it off close and leaving the pedicle within the peritoneal cavity. His pupils, Bantock and Thornton, who succeeded him in the Samaritan Hospital in December, 1877, adopted the antiseptic method then, and with it the intra-peritoneal ligature, never having used a clamp since that time. Thus we see the two greatest ovariotomists living, Spencer-Well (with his lieutenants, Bantock and Thornton) and Thomas Keith, both treating the pedicle by the intra-peritoneal method—the one by the ligature, and the other by the cautery, which settles forever the question of the clamp.

Chapter L., "Oöphorectomy."—The author says, in concluding the subject of Battey's operation:

Let me express my views concerning this procedure in a series of propositions.

I. Battey's operation will, by reason of the fact that there is a class of cases the great sufferings attached to which can be relieved only by the cessation of ovulation and menstruation, survive all opposition, and exist in the future as a surgical resource of great value.

II. It is an operation attended by grave dangers and by doubtful benefits. Nevertheless, the chances are greatly in favor of its affording relief.

III. It will ever prove more difficult and dangerous than ovariotomy, because pelvic peritonitis will frequently be found to exist in cases demanding it: because the ligature of the pedicle must often take place deep down in the pelvis; because the abdominal walls, instead of being stretched as in ovariotomoy, are contracted and resisting: because the removal of the ovary often involves tearing the surrounding tissue; and because the abdominal peritoneum has not been prepared for interference by friction from a large tumor as it has been before ovariotomy.

IV. While the practice of the operation for checking menstruation where vagina and uterus are absent is fully sustained, it is very doubtful whether benefit will result from it in cases of large uterine fibroids.

V. A greater degree of surgical skill is necessary for the successful performance of this operation than for ovariotomy.

The first two of these propositions, except in their literary style, may be pronounced unobjectionable. Let us look at the third. Is not peritonitis [adhesions] just as frequently found to exist also in cases demanding ovariotomy? What particular difficulty attends the application of the ligature, deep down in the pelvis, which is not more than equalled by many difficulties met in ovariotomy, but not met in oöphorectomy? What special source of difficulty and danger belongs to contracting and resisting abdominal walls? Does oöphorectomy involve the tearing of surrounding tissue more than ovariotomy? Does friction prepare the abdominal peritoneum for surgical interference? The fifth and last proposition is all clearly implied in the third, and is therefore a superfluous caudal appendix.

Chapter LI., "Diseases of the Fallopian Tubes."—*Chapter LII.*, "Extra-uterine Pregnancy."—*Chapter LIII.*, "Chlorosis."

In passing from the special examination of the individual themes to a general estimate of the facts and conclusions which this book contains, reference should be made to numerous tabular statements of symptoms and causes and effects, which are introduced in almost every chapter for the purpose of presenting the subjects to the reader at a glance. It is apparently in consequence of these tables that the book has gained much of its popularity. Let us see what one of these tables is worth. On page 277 are the alleged predisposing causes of chronic cervical endometritis:

I. Natural feebleness of constitution;
II. The existence of a cachexia, as tuberculosis or scrofula;
III. Impoverishment of blood from chlorosis or other cause;
IV. Prolonged mental depression;
V. Insufficient nutriment;
VI. Excessive lactation;
VII. Frequent parturition;
VIII. Subinvolution;
IX. Styles of dress which depress the uterus;
X. Want of exercise and fresh air.

The third cause clearly implies every essential thing that is included in the first, second, fourth, fifth, sixth, seventh, and tenth, all of which should be omitted, or, if mentioned at all, should be given as subdivisions of the third, instead of being made co-ordinate with it. Obviously, this table, without any excessive desire to condense, may be reduced to three causes—the third, eighth, and ninth, and even these are not specially essential. Indeed, most of the tables in the book, which serve to give it a pseudo-philosophical appearance, are subject to similar criticism.

The literary execution of a practical book is of such minor importance that we have avoided any intentional discussion of this feature. But enough has unavoidably crept in, by means of quotations, to suggest the question whether the work has that clearness, plainness, measure, and severity of expression which should be the style of an author who has had a close, careful experience. A certain, facile mode of expression pervades every page, which makes easy reading, but throws a glamour, a *vraisemblance,* over many statements which, but for this, would not so often escape analysis. The exuberant use of the adjective characteristic of tropical countries proves the truth of the French proverb, that "the adjective is the deadliest enemy of the substance." In consideration of the history of this work, which has passed through five editions, has been rendered into the German, French, Italian, and Spanish languages, and of the undoubted reputation and influence of the author as a clear and brilliant practitioner and teacher, it will be with regret that the profession must conclude that in this book exists much confusion of ideas, many inaccuracies of expression, and, at times, a deplorable failure to eliminate the old and discarded chaff of previous editions from this new one. E. C. DUDLEY.

THE UTRICULAR GLANDS OF THE UTERUS AND THE GLANDULAR ORGAN OF NEW FORMATION WHICH IS DEVELOPED DURING PREGNANCY IN THE UTERUS OF THE MAMMALIA, INCLUDING THE HUMAN SPECIES. BY PROF. GIOVANI BATISTA ERCOLANI, Permanent Secretary of the Academy of Sciences of Bologna, etc., etc. To which is appended his monograph upon the unity of the anatomical type of the placenta in all the mammalia, and the physiological unity of the nutrition of the fetus in all the vertebrates. With a quarto atlas of fifteen plates. Engraved by Bettini, and reproduced by the heliotype process. Translated from the Italian under the direction of HENRY O. MARCY, A.M., M.D., Fellow of the American Academy of Medicine, Boston Gynecological Society, etc. 8vo, pp. 305. Boston: Houghton, Osgood & Co., 1880.

THIS work should have a wide distribution from the fact that the author, by long continued and laborious investigation, has produced views peculiarly at variance with those generally held by writers and teachers upon gynecology and obstetrics, as well as upon comparative anatomy, physiology, embryology, and biology.

To all these and other workers in science, this book is of great interest and value. Criticism of a work of this nature would be much out of place and could only be truly indulged in after proving by investigation any errors of fact or deduction which the author may have made. In what follows, the aim is simply to give, in a very condensed way, some of the topics treated which are of the greatest interest to the medical reader. The work contains copious references to other authors. The English readers owe a debt of gratitude to the translator, Dr. Henry O. Marcy, for the highly creditable manner in which the latter difficult task has been performed; not only is this true in reference to the text, but applies with special force to the reproduction of the atlas of plates which serve to objectively illustrate many of the histological subjects treated of.

The Utricular Glands of the Uterus.—The type of these glands does not change in general in the various species of animals. They are formed by a canal of variable length, simply flexuous or tortuous, composed of a thin, fibrous, external membrane and covered internally by an epithelial layer; nevertheless the thickness of the external membrane and the form of the epithelium vary in quite a remarkable manner. Then are mentioned the varieties in numerous animals. Of the utricular glands of the uterus in women, some are simple, others branching; their external membrane is excessively thin; the internal epithelium is delicate and cylindrical. It is not so easy to observe them as it is in animals.

In all animals, during gestation, the uterine glands increase in volume, and the epithelium becomes more transparent and more delicate. The existence of crypts or simple glandular follicles is admitted for certain species of animals (cow and sheep). They differ essentially from the utricular glands in that they are very much shorter and more attenuated, and because their internal epithelium is paved instead of being cylindrical as in the utricular glands. They have one feature in common, that is, they increase in volume during pregnancy, and the character of their secretion is changed; their internal surface is no longer covered with pavement epithelium, but instead with very diaphanous oval cells. Their function during pregnancy is supposed to be analogous to that of the utricular glands; that the fluid elaborated during gestation is destined to furnish some elements for the nutrition of the fetus. At least, the author differs from the generally received opinion, that their function is simply to secrete the uterine mucus.

On the Glandular Organ, or Maternal Portion of the Placenta, in Animals with a single Placenta.—In the mammalia we must distinguish two different periods of fetal nutrition. At first the ovum, while the placenta is not formed, finds the elements of its nutrition in the fluids which are poured out in abundance into the uterine cavity through the utricular glands; just as the young chick finds in the white and in the yolk of the egg the albuminoid substances, the fat, the mineral matters, and the water necessary for its nutrition and development. But these elements not being sufficient for the complete development of the embryo, there is established *always*, though at different periods, according to the different classes of animals, an intimate bond of union between the mother and the fetus. The relation between the mother and the fetus is established by means of a glandular organ of new formation, and that this organ constitutes a special or maternal part of the placenta different in structure and function from the other or fetal part.

The Human Placenta.—The structure of the human placenta differs greatly from that of the mammiferous animals having a single placenta, not only in shape and the disposition of its parts, but in its formation and mode of separation from the uterus in delivery. The most notable cause of these differences is found in the phenomena which take place at the surface of the uterus upon which the placenta is formed, in order to give rise to the formation of the glandular organ; in the manner which the villi of the chorion are brought into relation with the same organ and the distribution of the utero-placental vessels in the human placenta. The most striking modification that takes place upon the surface of the uterus, at the point where the placenta appears, is connected with the formation of the decidua serotina, a membrane which is wanting in animals. In the latter, the growth of the glandular organ depends upon a metamorphosis of the uterine mucous membrane.

The Development and Relations of the Decidua to the Ovum.—According to the observations of modern physiologists, the ovum, after its entrance into the uterine cavity, adheres to some point of the mucous membrane; the membrane then swells around the ovum, embraces it like a capsule, and makes a nest for it; or constitutes the decidua reflexa. This capsule enlarges more and more with the development of the ovum, and at the third month it becomes attached to the uterine or external decidua: becoming blended with the latter, it loses its vascularity and finally makes but one single membrane. The uterine and reflected decidua are composed of the organic materials elaborated by the internal surface of the uterus and by the uterine glands.

The Author's Idea of the Decidua Serotina.—"I have said that the place where the ovum is arrested is also the point where in the beginning the deciduæ come in contact and are blended, however thin the reflected membrane which surrounds the ovum may be at the time. Every one knows that it is here particularly that the villi of the chorion are developed, which are at first the only means by which the ovum absorbs the nutritive elements from the materials that surround it. Not only do these villi increase greatly in magnitude, but they also become more complete; due to the vessels proceeding from the allantois which traverse them."

During this time, the connective tissue of the subjacent internal uterine surface proliferates and is transformed to such a degree as to constitute the most marvellous tissue known in the animal organism. The structure of the decidua serotina is so peculiar as to prevent its being confounded with the uterine and reflected decidua. The serotina ought to be considered as the stroma of the glandular organ or maternal portion of the placenta.

In order to understand what is about to be advanced, a short description of the placental villi is necessary. Each villus is composed of two distinct parts, an external membranous layer, and of a softer, vascular internal tissue, which is introduced into the other like the fingers in a glove. This distinction is easily observed where the external layer is torn, leaving the internal structure exposed. The external layer is formed by a transparent membrane, amorphous and non-vascular, in which are attached to the internal surface, numerous spheroidal cells, slightly flattened, forming a single layer.

The internal layer of the villus is formed of a soft, pulpy tissue which envelops the blood-vessels of the villi in which are found imbedded numerous fusiform and oval cells of the same general character as those which exist upon the internal surface of the external layer. The author believes that the external membrane surrounding the villi throughout their whole extent is furnished by the decidua serotina, and that the cells are not inclosed in the substance of the membrane, but that they form, on the contrary, a species of epithelial layer which lines the internal surface of it. There takes place upon the internal surface of the uterus, where the ovum is developed, a proliferation of connective tissue; there is not only hypertrophy and hyperplasia of the anatomical elements constituting the submucous connective-tissue, but these elements undergo transformation and give rise to the development of a tissue of special cells which are the stroma whence arise the glandulæ that constitute the maternal portion of the placenta. This stroma is known by anatomists as the decidua serotina. The mucous membrane and the glandular follicles also undergo a remarkable development; into the enormously hypertrophied utricular glands the villi of the chorion penetrate; the villi increasing in size, and multiplying their subdivisions, the vascular loops which are formed push forward the primitive wall of the villus. In this manner the glandular organ covers and envelops the subdivisions of the villi throughout their whole extent. "Approaching the chorion, the wall of the glandular organ which the serotina furnishes to the villi undergoes other modifications; formerly granular, the internal cells become transparent; their form which was oval, is rounded, and they fill the whole internal cavity of the glandular tube containing the vessels." What has been explained upon the structure of the villi, shows that they are always separated from each other by the walls of the follicle which reveives it, and by the hypertrophied connective tissue interposed between the follicles, in the midst of which course the vessels that serve for nutrition. In fact, the maternal blood bathes the external wall of the glandular organ furnished to the villi by the serotina.

The large cavities or lacunæ to be met with upon the internal surface of the placenta, as well as throughout its whole thickness, even to the surface of the chorion, which constitute the placental sinuses, in which swim the villi entirely surrounded by the glandular organ. The author believes that the utero-placental arteries open direct into the sinuses of the placenta. "In vertical sections of the decidua serotina we can easily recognize the transverse cuts of the utero-placental arteries and the large apertures of the veins, and their total absence in the portions of the serotina which become blended with the cells of the chorion, is composed, and on the other hand, the easy demonstration of the large sinuses full of blood in the interior of the placenta, in which float the villi; the impossibility that has always existed of demonstrating the capillary network of the utero-placental vessels in the placenta." The placenta is formed of two parts, distinct both in structure and in function; the fetal portion, which is vascular and absorbent, and the maternal portion, which is glandular or secretory; the parts constituting the fetal placenta are in contact with the fluid elaborated by the new glandular organ, and are bathed with it. "In the same manner as in the early period of extrauterine life, the child is nourished by the maternal milk absorbed by the intestinal villi, so during intra-uterine life the fetus finds its nourishment in the fluid or milk secreted by the glandular organ and absorbed by the villi of the chorion."

The differences between animals and the human species lies in the fact that, in animals, the new glandular organ or maternal placenta results from a modification and transformation of the pre-existing mucous membrane of the uterus; while in woman the same portion of the placenta is formed by a stroma which is of new development and is produced from the connective tissue of the internal surface of the uterus. In certain animals the maternal portion of the placenta remains intact in the uterus during delivery, and is afterward gradually destroyed, in cases where the placenta is multiple or disseminated. In case the placenta is single, the portion of the uterus which was occupied by the placenta remains after delivery, covered by a thick mucous membrane, surrounded on the sides by elevated folds. This thick mucous membrane, wide and rough a few hours after delivery, appears three days later lifted into several closely-crowded folds. In delivery, only that portion of the elevations of the mucous membrane is detached which has been transformed into the new glandular organ or maternal placenta. The portion of the mucous membrane remaining in the uterus, whose changes have been described, are gradually destroyed by fatty degeneration.

"In the human species only, is there a total separation and expulsion of the glandular organ in delivery. Consequently, in woman alone does there take place an extensive traumatic lesion of the uterus, on account of the laceration of the parts, which leaves bare the uterine tissue over all that portion which had been covered by the placenta. In animals with a single placenta, this lesion is limited to the connective tissue of the folds of the mucous membrane which has accompanied the elevation and the growth of the follicles of new formation."

In the human species only, the utero-placental arteries and veins are not divided into trunks and branches in the placenta. The maternal blood is poured out in the interior of the placenta into large cavities, lacunæ, which communicate with each other, and are limited by the chorion on the fetal side and by the serotina on the uterine side. The blood which is poured into these lacunæ is mingled with that which has already become venous in the interior of the organ. The venous sinuses, circumscribed by the serotina, carry back to the mother the blood which has fulfilled its office in the placenta. It is only in the human species that a mixed arterial and venous blood is brought in contact with the external surface of the glandular organ which contains the fetal vessels, and also the only example that a mixed blood is brought back from the placenta into the general circulation of the mother.

E. A. MAXWELL.

ABSTRACTS.

1. A. Martin: On Prolapse of Vagina and Uterus (*Volkmann's klinische Vorträge*, 183–4).—In discussing the treatment of prolapse of the vagina and uterus, it is of fundamental importance to consider minutely the etiology and pathological anatomy of these cases, if we wish to obtain a correct foundation upon which we can build up the best method of treatment.

In a condition of health, the uterus rests upon the vagina, the bladder, the rectum, and the muscular floor of the pelvis, which closes all three. Its position may be influenced by the degree of fulness of neighboring organs, the amount of intra-abdominal pressure, position of the woman, and especially by its own volume and the condition of its principal supports, the ligamenta sacro-uterina. Rectum and bladder, when distended, find sufficient support in a healthy, unrelaxed, muscular floor of the pelvis, to expand in an upward direction. This physiologically normal relation of parts to each other may be altered by two causes: 1. Increase of intra-abdominal pressure (by exudation or new growths, which are not considered, as this form of prolapse plays a very unimportant part). 2. Changes in the parts themselves, chiefly due to pregnancy and parturition. Pregnancy is always accompanied by hypertrophy of the vaginal walls, which gives rise to distention of its lumen and a prolapse of the hypertrophied folds, which again distend the introitus. If, during parturition, forcible dilatation of parts is added to this, puerperal involution and restitution will have an immense task to perform, in which it might succeed, were it not exposed to so many accidents. Such are, lack of proper care, rising too early, premature sexual intercourse, irregularity of the bowels, and one to which not sufficient importance has hitherto been attached, the loss of adipose tissue surrounding the vaginal tube, thus relaxing its attachments on all sides. Add to this that the introitus never returns to its original size, especially if there exist deep cicatrices in the posterior commissure, instead of a healthy perineum, with the loss of which the bladder and anterior wall of the vagina are deprived of their chief support.

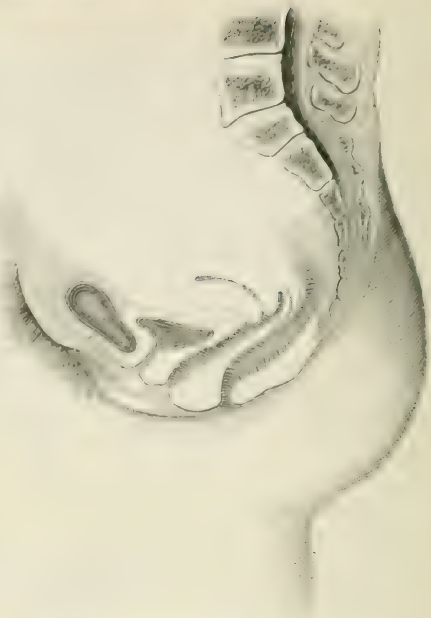

FIG. 1.—Normal relations of pelvic organs,

The disturbance of the process of involution of the vagina also involves that of the uterus. It remains larger and heavier than normal; its ligaments do not recover their former tone. It lies immediately upon the floor of the pelvis, whose power of resistance has already been lost, and therefore cannot bear this weight. If its position is also changed, so that its axis forms with that of the vagina an obtuse angle or a straight line, it will gradually descend into the lumen of the vagina and invert its walls. This chiefly takes place when we have an abnormal weight brought to bear on the uterus, such as a distended bladder or rectum such as we often meet with in childbed.

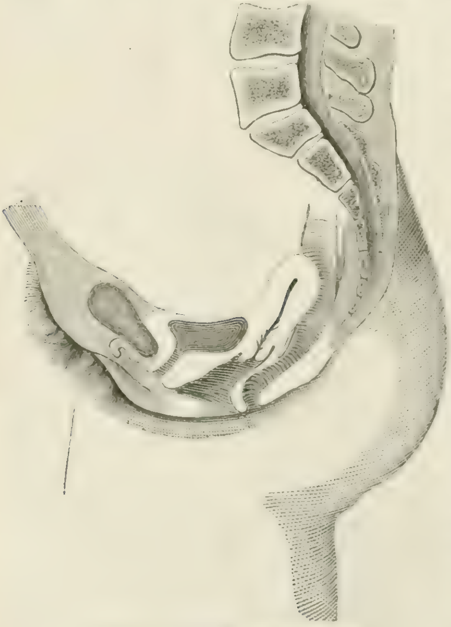

FIG. 2.—Rupture of perineum.

Prolapse of the vagina may, however, also be nonpuerperal, but it is only caused by new growths in the recto- or vesico-vaginal septum, and by unscientific treatment. Nonpuerperal prolapse of the uterus seems to occur more frequently, although it is only in very rare cases that the uterus is not enlarged. At all events, it is most frequently the elongated collum uteri, whether due to acute inflammatory changes or to chronic hypertrophy. In considering the anatomy, the author takes the different regions separately.

1. Anterior wall. Two distinct forms — first, in which the lower two-thirds of the anterior wall descend; second (very rare), in which only the upper one-third is involved. The mechanism of the former is explained as follows: The lower two-thirds of the anterior vaginal wall are submitted to an enormous strain during parturition, its tissue being already relaxed and developed into massive folds. Now suppose the patient gets up too soon, she cannot empty her bladder completely or strains violently at stool; the anterior wall, not being supported by a subinvoluted septum recto-vaginale and by a relaxed introitus, carrying the orifice of the urethra with it, will appear at the vulva; slowly the bladder descends with the septum, and the result will be a pouch extending forward beneath the level of the internal orifice of the urethra, so that the bladder is either never completely emptied or only by very violent effort. Thus we will finally find the lower larger half of the anterior wall, and with it the bladder, outside of the introitus, constituting prolapsus vaginalis anterior, with cystocele.

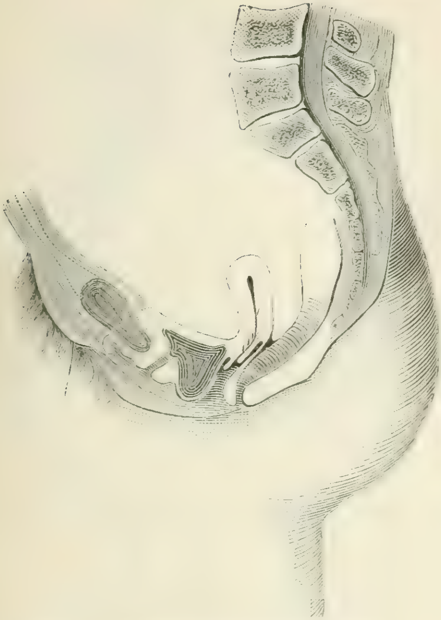

FIG. 3.—Ruptured perineum and cystocele.

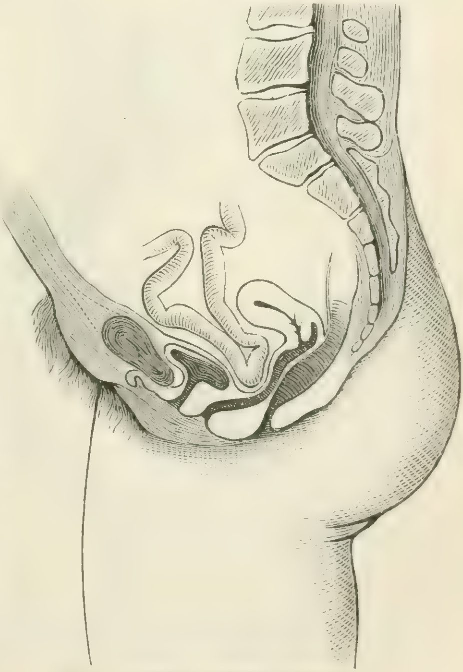

FIG. 4.—Anterior vaginal enterocele.

Again, we may have prolapse of the anterior wall without involving the bladder, in which case we will always find that the connection between the uterus and bladder is very loose, varying from 1 to 4 cm. The overlying gut presses down upon this portion of the wall, causing it gradually to descend, while that portion behind the bladder remains intact. This would constitute enterocele vaginalis anterior (Fig. 4). The same process is met with somewhat more frequently in the posterior wall, and is then enterocele vaginalis posterior (Fig. 5).

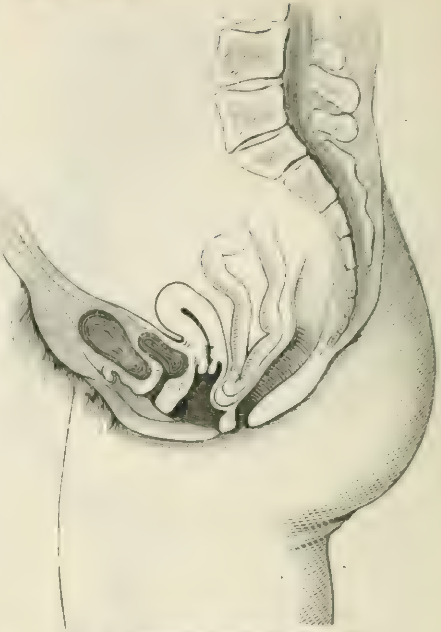
FIG. 5.—Posterior vaginal enterocele.

The same is the case in the posterior wall as in the anterior, namely, that it is most frequently the inferior larger half which prolapses, which in some cases is due to excessive hypertrophy of the posterior wall; in others, to distention of the rectum by fecal accumulations, which ensues, as a rule, when the perineum has become unyielding, owing to the presence of cicatrix, which also involves the sphincter. In such cases, a large pouch is bulged out in the anterior wall of the rectum, which sags down, and, carrying the posterior vaginal wall with it, appears at the introitus (Fig. 6).

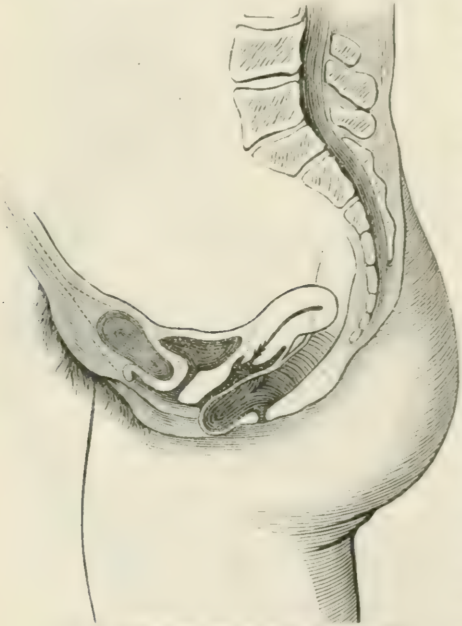
FIG. 6.—Ruptured perineum and rectocele.

All these forms, however, are rarely found single, but are generally complicated with others. Thus we most frequently have prolapse of the anterior wall with the bladder, and secondary elongation of the neck of the uterus, the lips of which are also prolapsed (Figs. 7 and 8).

The anatomical changes which take place involve both the shape and the tissue of the organs concerned. The prolapsed mucous membrane becomes dry, edematous, loses its rugæ, and, by contact with the air, dirt, urine, etc., extensive ulcerations may be formed. The prolapsed portion of the uterus becomes enormously hypertrophied, and the mucous membrane of the cervix everted.

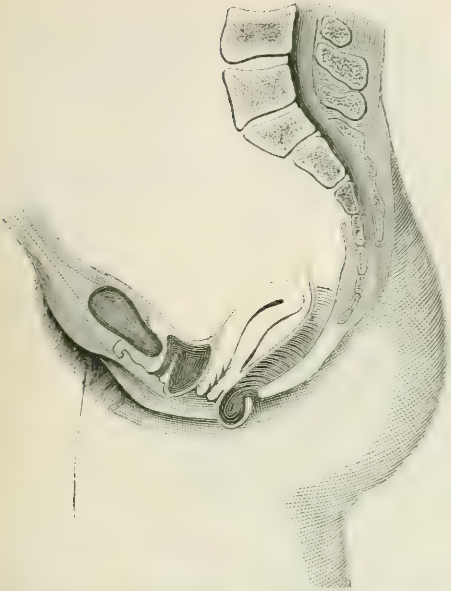

Fig. 7.—Ruptured perineum, cystocele, and rectocele, with slight elongation of cervix.

The symptoms of the affection are well known, and need not be dwelt upon here.

Treatment is primarily prophylactic. Build up the mother's strength during childbed by plentiful diet, since it is the author's opinion "that a healthy woman, just confined, need suffer no restrictions of diet whatever." Disinfectant, astringent injections are well borne from the fifth or sixth day. If the sensation of patency below and descent is experienced, sitz-baths and irrigations of decoction of oak-bark are indicated, and, in case of their failure, tannin-glycerin tampons may be used with good effect, and should be continued for months. In some cases, however, medical treat-

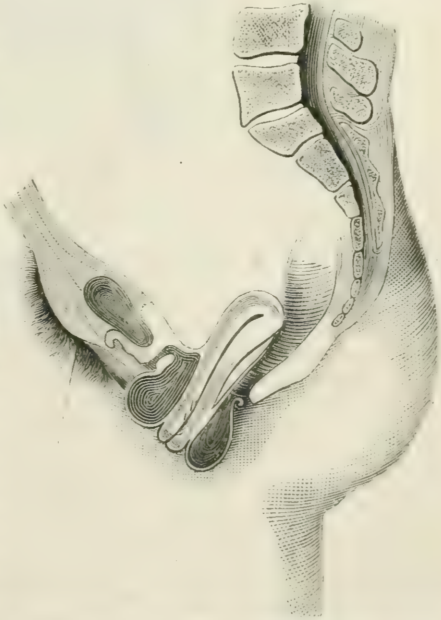

Fig. 8.—Ruptured perineum, rectocele, and cystocele, with elongation of cervix simulating prolapsus.

ment is of no avail, and we will be obliged to resort to surgical interference. Author condemns the use of pessaries, except as a palliative in hopeless cases, and such that are inoperable on account of some local or constitutional contra-indication. He resorts immediately to radical operation.

The first attempts at retention by diminishing the calibre of the vagina or vulva were made with cauterizations of the mucous membrane. The results were uncertain, the resistance obtained not durable. In 1831, Henning, followed in 1836 by Dieffenbach, attempted to attain the desired result by removing portions of the mucous membrane and uniting the edges of the wounds, according to Marshall Hall's recommendation. They failed, however, to do more than to partially remove the hypertrophic masses. Sims' proposition to diminish the size of the anterior wall was the first to find lasting recognition, and his operation of kolporrhaphia anterior, which consists in the excision of an oval of mucous membrane corresponding in extent to that of the prolapse, is retained to this day as part of the radical operation. But it is insufficient by itself for more advanced cases, as well as other methods which confine themselves to the posterior wall or the perineum. More recently, Winckel has offered a method which is good in younger women, and where there is no rectocele or rupture of the perineum, by which it is proposed to cause retention more by bending the vagina upon itself than by narrowing the vagina. The denudation occupies only the lower third of the vagina, its anterior edge formed by the remains of the hymen, its breadth 2 to 2½ cm., its lateral edge extends upward as far as 3 to 4 cm.

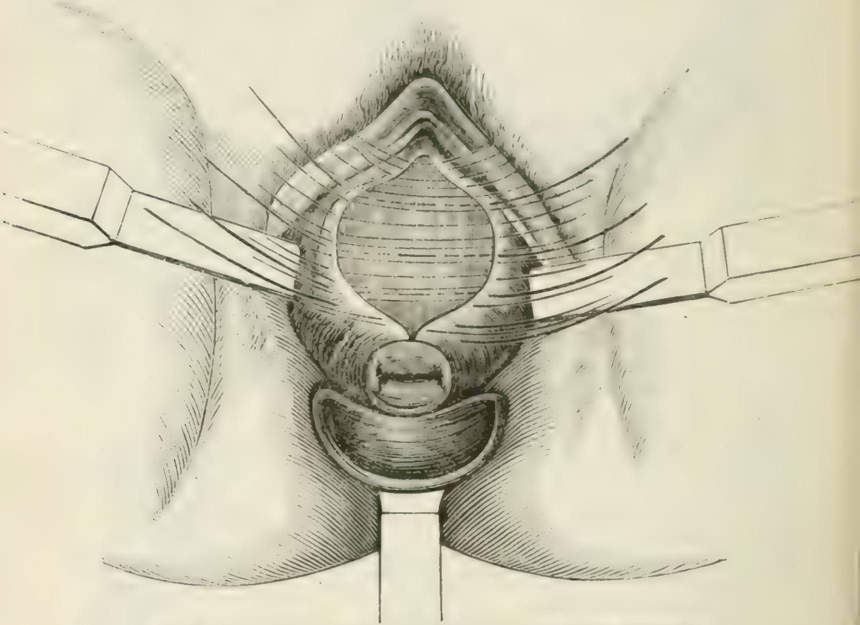

FIG. 9.—Hegar's operation for cystocele and ruptured perineum.

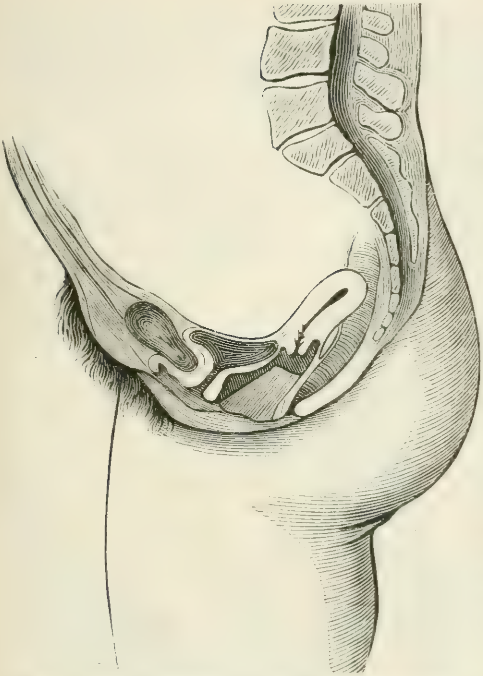

FIG. 10.—Simon's operation of posterior colporrhaphy: section.

beneath the orifice of the urethra. Beginning at the middle of the fossa navicularis, two flaps 6 cm. in length are dissected off on both sides: these are then shortened to 3 cm., and then united in the centre with the denuded surfaces like a bridge. The edges are then to be brought together in the middle from below upward by deep sutures, so that it assumes the shape of the letter T. In seven cases, Winckel has had very good results: the author operated four times. In two, there was only partial union: in the other two, the ridge formed soon contracted under the weight of the uterus, which prolapsed as before. It is, therefore, apparent that the chief point in the operation is the strengthening of the floor of the pelvis, which problem was first solved by Simon, followed by the method devised by Hegar.

Three operations are generally necessary for prolapse, which can be performed at one sitting. For the first, *i. e.*, to diminish the size of the uterus, author prefers Hegar's method, which consists in bilateral incisions into the neck of the uterus and excision of wedge-shaped pieces out of both halves resulting, and uniting the mucous membrane of the cervix with that of the vagina. If the cervical mucous membrane is degenerated, author prefers his own method. He excises one lip as high up as is indicated, and to the centre of this he attaches a drainage tube by sutures in the prolongation of the cervical canal: the same is done with the other lip, and a drainage tube attached to it also. Finally, both surfaces are united on the sides of the drainage tube from before backward. After the volume of the cervix has thus been reduced, kolporrhaphia anterior is immediately performed, according to the usual method, by excision of an oval piece of mucous membrane, as shown in Fig. 9. After completion of the suture, the anterior wall and the uterus are reduced, the latter to its normal anteverted position, and kolporrhaphia posterior performed.

According to Simon's method, a ridge or prominence is to be produced on the posterior wall, whose upper wall is to be very abrupt, and which diminishes the lumen of the vagina considerably (Fig. 10). Against the upper end of this wall the uterus is supposed to rest when it is anteverted, and even when it is retroverted and glides over the upper edge it will be directed toward the symphysis, and there find permanent support. To attain this, Simon denudes the mucous membrane in shape of

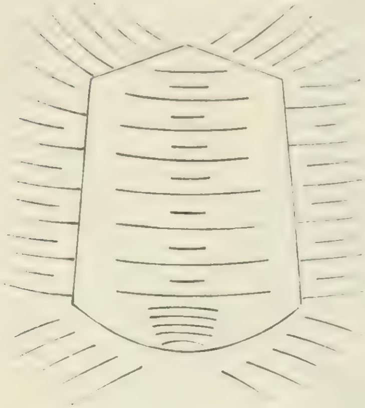

FIG. 11.—Shape of denudation on posterior vaginal wall in Simon's operation.

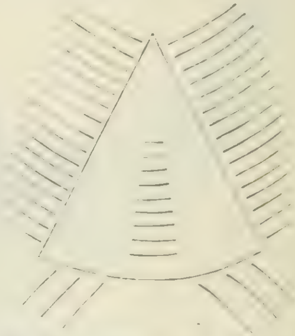

FIG. 12.—Shape of denudation on posterior vaginal wall in Hegar's operation.

a sexagon (Fig. 11). The incision begins on either side as high up as possible, passing from the median line outward and slightly downward

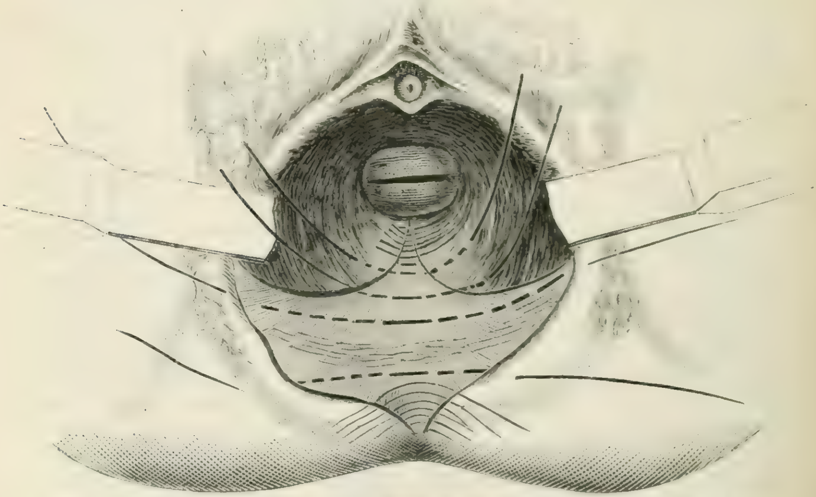

FIG. 13.—Hegar's operation for rectocele, lacerated perineum and prolapsus; front view.

as far as the middle of the lateral wall, is thence prolonged along the lateral wall to the vulva, and the ends are then united by a U-shaped incision along the posterior half of the vulva. But, in the hands of other operators, this method did not prove as reliable as Simon maintained, even his disciples having been obliged to modify it. The chief obstacle to union by first intention seems to be the traction the lateral edges are subjected to, and if they do not remain in exact apposition, secretion oozes out between them, and prevents their union. But even if it does unite primarily, the barrier does not answer the purpose, as it very soon becomes elongated. Therefore, Hegar opposed Simon, maintaining that retention ought not to be accomplished by such a barrier, but by giving the posterior wall more power of resistance, while it remains on the stretch, and thus prevents the uterus from descending. Hegar's figure of denudation is a simple triangle (Fig. 12), whose apex lies as high up as possible in the vagina, and whose sides are prolonged downward, the base formed by a U-shaped incision (Fig. 13). When the opposing edges are brought together by alternating deep and superficial sutures, a mass of tissue is drawn toward the median line, which does not form an abrupt barrier, but prevents descent (Fig. 14) of the uterus by its own massiveness, which the uterus cannot invert. Undoubtedly Hegar's method has been attended by excellent results, were it not that, in the hands of other operators, its success was very uncertain, which can only be due to the traction to which the edges are subjected at the point where the incision passes from the posterior to the lateral walls of the vagina.

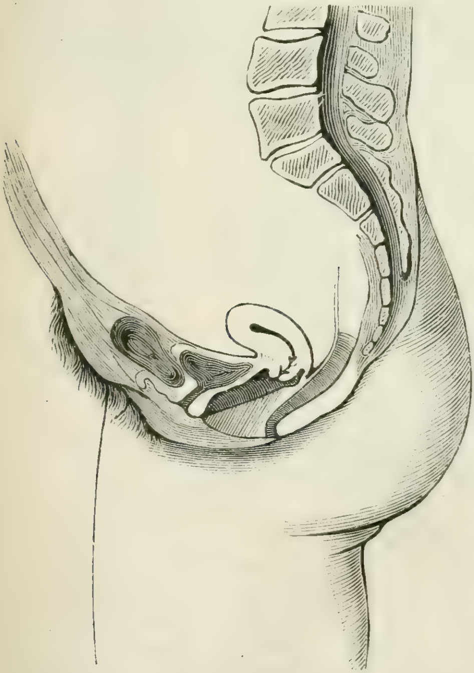

FIG. 14.—Perineum as restored by Hegar's operation.

Thereupon Bischof advanced a remarkable method. He adopts the idea of Simon, differing, however, from his method by his proposition to displace the uterus, so that its axis forms an acute angle with that of the vagina. While Simon and Hegar denude the whole of the posterior wall, Bischof dissects off only a large tongue-shaped flap, which he unites with the lateral walls at half their height, thus leaving a funnel-shaped loss of substance, which is to be closed by sutures introduced from the perineum (Fig. 15). Banga claims for this method certain retention of the uterus, facility of execution, and constant primary union, the wounded surface being protected from the secretions by the flap.

Author operated according to this method in five cases, and denies Banga's claims, his experience having been just the opposite.

The author comes to the conclusion that none of these methods has met with satisfactory success in his hands, while the one devised by himself meets all indications. It is based on the anatomical relations of the lumen and walls of the vagina, as stated by Henle and Freund. The cavity of the vagina is not round, but assumes in a state of rest the shape of the letter **H** (as shown in Fig. 16), in the vertical branches of which the rugæ of the walls meet. On the posterior wall, the rugæ are much larger, and are supported by a strong network of connective tissue, whence this portion is called the columna rugarum posterior, and it is this ridge which is the last to become affected by the changes the prolapse gives rise to, and very rarely disappears altogether. The methods of Simon and Hegar cut through this and deprive it of its lateral folds. Bischof makes use of it for his flap operation, uniting it with the lateral walls. But it is quite unnecessary, and not without danger, to dissect off this flap, for in the virgin, according to Henle, the posterior wall protrudes so far into the calibre of the vagina that it comes in contact with the lateral walls at about the middle of their height. It thus appears sufficient to excise the mucous membrane which lines the depression between the columna and the wall, and thus bring these two edges together. Author claims, as advantages, that there is very little hemorrhage, and the denuded surfaces small and exposed but a very short time, as they are brought together as soon as made. His mode of operating is as follows: The posterior wall being drawn down and held by ball-forceps, the columna is noticed as a prominent ridge in the median line of the tense mucous membrane. This ridge is then circumscribed by an incision (Fig. 17), 1–2–3–4, and dissected off, and the flap thus obtained allowed to hang down over the introitus below (1–4). The denuded surface is covered in by bringing the edges together by alternating superficial and deep sutures, so that a is attached above 4, and a part of the

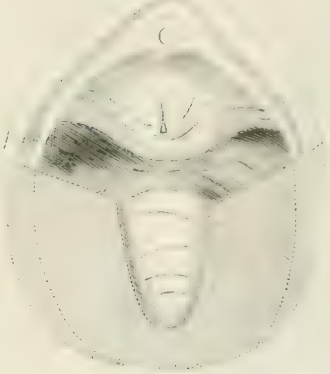

FIG. 15.—Bischoff's operation for prolapsus.

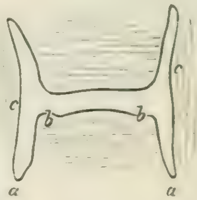

FIG. 16.—Shape of the normal vaginal canal in state of rest.

edge (β–4) remains free to become attached to α. One side having been operated upon, the same is done on the other, and the vagina is then reduced. The second part of the operation consists in circumscribing the introitus by an incision beginning at 4, running upward to half the height of the introitus at I, downward along the edge of the mucous membrane to the median line, ending in front of the anus. The inclosed surface is then denuded, with which the lower ends of the flaps 1–2–3–4 come away. The edges are then brought together by deep sutures, which unite 4 with α and approximate the lower ends of the lines 4I, and then β is united with β, γ with γ, δ with δ. The needle is then carried along one side as far as the median line αII, and immediately inserted again on the other side, so as to surround the whole wound. The following sutures are not so deep, and unite the lines I II by sutures going from a to a, b to b, c to c, etc. Statistics are added of twenty cases operated on, eighteen with complete success, while but one was an actual failure.

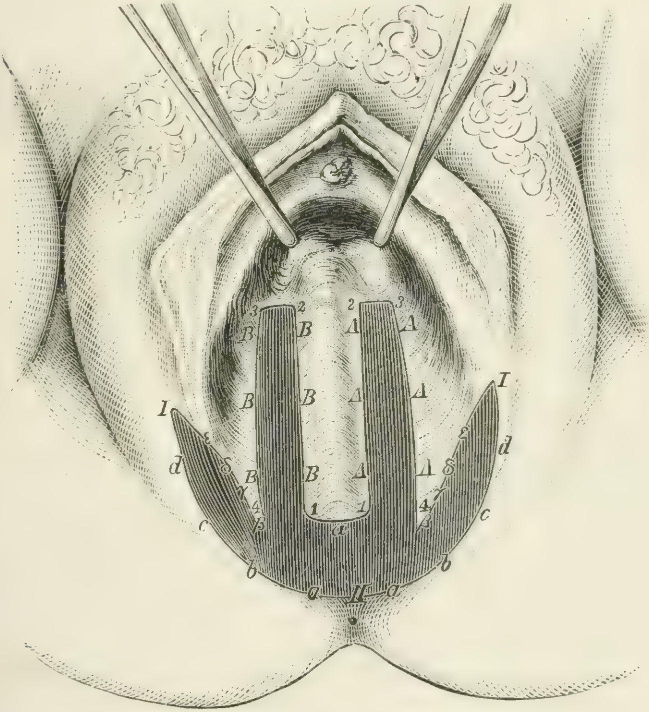

FIG. 17.—Martin's operation for prolapsus uteri et vaginæ.

W. T. KUDLICH.

2. Schlueter: A Contribution to the Treatment of Prolapsed Funis.—In his thesis for graduation (*Zur Therapie des Prolapsus funiculi umbilicalis. Inaug. Diss., Halle*, 1880), SCHLÜTER gives a fairly good résumé, mainly historical, but in part critical of what is at present known concerning this anomaly. The résumé is, however, fairly good only as far as it goes, and the trouble is that it does not go very far. Schröder's views in regard to therapy are upheld, though the author also mildly assents to Olshausen's opinion. The only valuable portion of this little thesis consists of a table of cases, observed at the clinic of Halle from 1870 to 1879.

Sixty-five instances of prolapse of the funis were recorded. Of this number, forty-three (sixty-six per cent) resulted in a living child. In twenty-five cases of head presentation, version and immediate extraction were resorted to. Twenty infants were thus born alive. In one case the fetus had died before this manipulation was commenced; hence, subtracting this, the children saved amounted to eighty-four per cent. Eleven breech or foot presentations, with ordinary extraction, resulted in eighty-two per cent living children. In eleven cases of reposition, three still-births were observed; hence seventy-three per cent alive. The forceps were applied nine times, with seventy-five per cent saved. In seven cases spontaneous birth took place, the number of living children only amounting to fourteen per cent. Perforation had to be performed in six out of the whole number of sixty-five cases. Only in one case did the death of the mother occur. This was due to eclampsia. The course of the childbed was invariably satisfactory in the remaining sixty-four cases. In conclusion, the author repeats the somewhat antiquated warning that quick decision and prompt action are very desirable in prolapsed funis, and it is intimated that it was owing to these that the results obtained at Halle were so good. E. C. WENDT.

3. Kollosser: The Transformation of Face into Occipital Presentations by Manual Means.—In his thesis for graduation, presented to the medical faculty of the University of Halle, KOLLOSSER gives a historical résumé of the subject, and then proceeds to describe four original cases of this kind. From a study based on former cases, and from his personal experience (limited to the four cases referred to), the author believes that he is justified in drawing certain conclusions. He thinks that by combined manipulation, according to the method called Pippingsköld-Fritsche's turning, face presentations may be changed into head presentations without endangering the mother or child, and often without causing pain. He recommends this manipulation, therefore, but at the same time formulates the conditions which would make its attempted performance appear inadvisable. These are:

1. If the mother's pelvis is narrowed beyond a certain limit;
2. When the child's head is no longer movable at the pelvic entrance, and if the occiput cannot be externally palpated;
3. If a portion of the infant's face has already passed the os (for this would make turning a difficult maneuvre);
4. Finally, if the manipulation is to be made, the labor-pains must be adequate in strength and regular.

Chloroform narcosis is recommended to obviate maternal "reaction," and the bladder and rectum should of course be previously emptied.

E. C. WENDT.

DEPARTMENT OF DISEASES OF CHILDREN.

EDITED BY . . . GEORGE B. FOWLER, M.D.

ORIGINAL COMMUNICATIONS.

PSYCHOGENESIS.

THE DEVELOPMENT OF THE HUMAN MIND IN THE FIRST YEARS OF LIFE.

Translated from the German of
PROF. W. PREYER,
Jena.[1]

PSYCHOGENESIS, or mental development, has been, not only in ancient times, but also of late years, an object of study to the most distinguished minds. Numerous works have been written on the history of the development of the mind of man, and particularly on its advance in understanding, action, and knowledge. The whole history of philosophy is eagerly represented as the advanced development of man's knowledge. All psychologists recognize the necessity of comparing the soul-life of man with that of animals, and following them both through all their advancing steps. Modern natural-science empiricism, strengthened by many a victory over speculation, has even taken upon itself the Titanic task of claiming as its own and explaining by its own laws the highest problems of soul-life. Wiping away the last point of difference between man and beast, it declares that all power and action of the human mind may be followed, step by step, in its natural development out of the spiritual dispositions and the instincts of the beasts. Whether through such attempts the high privileges of man's inner life have lost, or through better expression of nature's laws have gained, these endeavors have at least brought about a more careful study of the psychical expressions of animals, their feelings and instincts, their will, and their reason.

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[1] With the sanction of and additions by the author.

With an understanding of the development of the mind of an animal, we have, indeed, not a full knowledge of the human mind, be they ever so closely allied—yet the study of psychogenesis from this starting-point promises more than the most skilful hypotheses as to the connection of body and mind—though these also are not to be discarded as imaginary, for they at least serve to incite to deeper searching for the real facts of the case. Thus the remarkable work of the Abbé Condillac, "Traité des Sensations," which appeared in 1754, and still to-day holds its readers so enchained, is in its premises fanciful, but it excites powerfully by its unusual keenness. A statue, in whose place the reader must imagine himself, receives first the power of smell, then hearing and taste, then sight, and, last of all, the sense of touch. In each stage, the mental state of the statue is described. But do we learn from this picture how it is with man, born with one, with *four* senses? Not in the least. Condillac's psychological fable reminds us rather of Pygmalion and his statue, brought by Aphrodite's help to breathe and live. Why artificially quicken the artificial product of man's hand, and ascribe spiritual attributes to it while the full natural life is immediately about us and unfolding itself before us day by day? Who would study the mind of man must, first and above all, make the *mind of the child* an object of methodical examination. Even the newborn child, in all its pitiful helplessness, is an extremely interesting study for physiology, which must lay the foundation for all psychology. And the suckling! It seems incomprehensible that the gradual unfolding of its thought, its will, its understanding, its sorrows, its virtues, fastens the attention of only those to whom it belongs. For thousands of years children have been born and lovingly nourished and watched by their mothers, and for thousands of years learned men have discussed mind-development without once studying the child itself. The experimental physiologist enters the nursery but rarely, and then only when he is a *pater familias.* The psychological development of a child from birth to about the third year has never yet been scientifically described. Concerning the diseases and great mortality of children, their nourishment and care, their growth in length and weight, medical men have piled up a rich literature. Scanty and interrupted, on the other hand, are the observations concerning the spiritual growth. Various investigators have, it is true, reported their observations on the mind of the child, and these, on account of their paucity, have the greater worth, but from them no firm conclusions could be drawn, and the few natural scientists, physicians, and linguists, who have undertaken the study of the psychogenesis of new-born children, have, up to the present time, brought together but little material. The same may be said of teachers, for it is at the time when methodical education has not yet begun, the time that belongs to the mother's care, that the most buds unfold. The brain of the child increases as much in the first year as in all the rest of its life. Education is a hard task, but that it is successful is still harder to understand. Not every one can learn what one before him has learned. Only certain predispositions are born in every man. True education must start from these hereditary preferences, and give due force to their variations, not measure all with the same measure or train all by the same rule. One has these, another those capabilities. Hence, from a practical stand-point, it is of the greatest importance to study the very first spiritual impressions and expressions of a child. In this respect, it is greatly to be wished that several well-grounded physiologists would make observations, separately, on a large number of children, and then compare their results; or that fathers taking observations on their own children should allow them to be controlled and criticised by friends. A man falls too easily into the error of generalizing for all what is only true of his own child. Every father has his own system of bringing up.

First, it is necessary that each one should carry on a diary concerning his child from the day of birth. From my own experience, I can testify that there was scarcely a day during the first two years that I did not find something to enter that was of value to the study of psychogenesis. It is only necessary to busy one's self eagerly and long with the little creatures, and to try to answer undetermined queries by repeated observations and harmless experiment. The direction of these queries we may get from the consideration of what is in the adult the necessary foundation of the expression of the mind. In every case, the door of the senses must be open. Without this, there is no mental activity. There must be impressions, engraved in great number; memories left behind and often repeated before the mind expresses itself, before the lowest power of the understanding, that of *comparison*, can be shown. In deep sleep, we can recognize no activity of the mind. The sleeper is blind; his feelings are quenched. When they are sleeping, one cannot tell the mental condition of the blind deaf-mute from that of the most intelligent child. In new-born children, therefore, the development of the senses is to be studied—in what way and what order they unfold themselves.

The senses are not, however, the first thing, but the *movements;* for, before any of the senses are awake to external influences, the child, to its mother's joy, moves. These movements must have causes. These causes must be studied. The movements and the activity of the senses of new-born children and sucklings furnish us our starting-point. Next begins the development of the *will*, and it is only when this begins to act that the *understanding* makes itself felt, and at length, in union with the will, opens the bud which unfolds into the *restraining of impulse*, the *judgment of impressions*, and the *statement of its own opinion* by means of *speech*. The attempt to follow these steps of advancing psychical development is fascinating and instructive. The foundation of all mind-life is in the will, the feelings, and the thoughts of the child.

First, then, the *development of the will*. *Crying*, the first sign of life given by the healthy new-born, has been mentioned as an expression of the will! Does the great Immanuel Kant opine that this cry has the tone of irritation and anger? That it is not because something pains him, but because something vexes him, that the new-born man cries? And forsooth, because he wants to move, and his inability to do so seems to be a restraining of his freedom—and *therefore* does Kant think he cries? Has he verily, in his long bachelor life, ever seen and heard a new-born child? He would then surely have judged otherwise. The widespread opinion that this cry is caused by the pain of cold and the entrance of cold air into the lungs has also little in its favor, as also the old explanation that it is a cry for help, like the pecking of the chicken on its shell—as if the little creature had any idea of its helplessness or of anything about him. All these hypotheses are overthrown by the simple fact that children born without any brain may cry as well as those with; so we may exclude as causes vexation and anger, pain and discomfort, and especially any conscious mental activity. The key to the explanation may probably be found in the cases of brainless animals, who, on certain irritations, for instance, stroking of the back, always give forth a reflex sound. For we have here a purely reflex action of the nerves of the voice, as in laughing when the cutaneous nerves are tickled. Sometimes new-born children sneeze, instead of crying. Now sneezing is a purely reflex action, and just as little as there is in it any result of emotion or feeling, consideration or intention, just so little is there in the first wail of a child. It is of no more psychical importance than snoring.

Now, as to the movements of the limbs. Are these not the expressions of a will or clear tokens of an understanding? The stretching out of the arms and legs, now slow, now quick, the movements of the hands, the fingers, the feet, the toes; to an unprejudiced observer, these are all evidently objectless. The frequent wrinkling of the forehead and drawing of the face seems more like voluntary muscular action, but when one observes the want of dexterity in all the child's movements, sees that it cannot even hold up its head, nor, for several months, make the least attempt at grasping or other simple co-ordinated movements, then he will certainly not look upon the first peculiar movements of the face or extremities as the expression of consideration or will. Of what sort, then, are these peculiar muscular contractions which appear only in the first stage of life? Similar movements are seen in animals on waking from a long winter's sleep, and sometimes after ordinary sleep. There is no external existing cause which works either directly upon the motor nerves and muscular fibres or indirectly through the nerves of sense by reflex action. The sleeping child moves like the waking one, only less frequently and slower; so there can be no question of imitative action about it. If, then, there is no external cause, we must seek for internal ones. These are either *acquired* or *hereditary.*

Acquired causes of action presuppose considerable experience. He who moves himself with a purpose, in a word, who *acts*, can only have gained the motive for this action out of many perceptions and observations of the conduct of others. Of such *action*, the new-born child is utterly incapable. It does not act, it simply moves itself. There is another form of acquired muscular movements, *movements of expression*, more in use among less civilized people, and especially the excitable Southerners; gesticulations, arising partly from imitation and partly because they are useful for self-help and defence. The stronger the feeling the more energetic the gesture. Even this slight description suffices to show that the new-born child, which has no appreciation of its own condition and no emotion, cannot use this language of emotion. However much the stretching out of the little arm may seem like a command, the drawing back of the hand to express dread of some surrounding power, however much the gestures may seem to express longing or aversion or some other emotion, in no case do they really do so, for in all these emotions, and the means of expressing them, the child has as yet no experience. It does not know them.

There remain, therefore, only the *hereditary* causes. Not that the new-born man moves himself in the way he does just because his father and his ancestors did so before him, when they were young—that would be merely begging the question; but he makes these movements because the central organs of his motor nerves, the motor-ganglia-cells, when they have developed, unload in an objectless manner the *inherited superfluous provision of motor impulses.* The steam engine lets off the extra steam. The fire burns even in earliest youth, and no man can dampen it. The full cup of life foams over. These first movements have been called *instinctive*, because no outward cause could be found for them. But instinct, which can only be understood as an *inherited memory*, always has a determinate object. It directs to something which, for generations, has been useful to the organism—for instance, the sucking of the new-born child, which is not a purely reflex action; otherwise the satisfied child would still suck. The movements of the extremities of young animals and children, on the other hand, have no decided object. They are not reflex and not instinctive, but *impulsive.* They have been called automatic and spontaneous, but these terms are more apt to be misunderstood. The motor nerve, with its muscular fibres, follows the slightest central impulse in the spinal cord in children born without brains, as well as in the fully developed. It depends only on the intact condition of the spinal cord. New-born men are "spinal-cord beings," as Virchow shrewdly remarks. They lack the restraining force of the brain. The controlling nerves, as shown by Soltmann's observations and mine, are not yet developed. Hence the hypercinesia, the tendency to convulsions, the liveliness of first youth, which never will return again, and knows nothing of self-control. The more the brain and the understanding are developed, the less we have of these superfluous movements, but even in later life there are very few who make only the absolutely necessary motions. It is a mark of high standing and completed education to refrain, under all circumstances, from any unnecessary movements. This rare degree of self-control and strength of will offers the strongest contrast to the unreserved activity of the child, and shows the mighty influence which example and strict rule, and especially external impressions, have upon the development of the will. It is an error to think that the will *begins*, *originates* from the impressions of early youth. As man cannot make a flower out of its constituents, earth and air, but must let it develop itself from a seed, be this ever so small, so now and evermore it is impossible to *make* a will in children out of external experiences, but it must develop itself from the inborn will-germ. At first, the child is ruled by its impulses and bodily needs, especially hunger, and follows the instinct to satisfy these when and where it may, without the least regard for anything else, without consideration, without will. Even touching the lips with the finger induces the act of sucking, and this instinctive action is regularly followed by the reflex action of swallowing. Here there is still no will. When the hunger is satisfied, touching the lips will not cause sucking. This is also no sign of a will, an opposing will, but only a token that the instinctive impulse is quieted. When the bird has built one nest, he does not build another alongside of it, because by the building of the first his instinct has been satisfied.

The first sign of the awakened will of the child appears rather in the *holding of the head* than in the movements of the limbs or lips. The little chick, just out of the egg, in the first hour cannot raise its head. I have often noticed this. When it raises the head, it is still unable to stand. When, at length, it gets up, it often hesitates a long time before taking the first step. What here takes place in less than a day, in man is stretched over a year. If a little child is held upright, its head falls forward or to the side. It is only after about fourteen weeks that the attempt begins to be successful. Here apparently begins the first exertion of the will. After about four months, the head is well balanced. It is not in this case the weakness of the muscles which is at fault, for much earlier than this reflex motions requiring more strength are made with tolerable surety. At birth, perhaps the muscles are too weak to support the head, but not after three months. The successful balancing of the head is followed by attempts at sitting, balancing the body. The first trials at this usually fall in the fifth or sixth months. The attempts of the child to maintain the upright position, given to it by means of pillows and supports, are often repeated, apparently to its own enjoyment, daily and week after week, until at length, in about the tenth month, the balancing is perfect, and the child sits. The will has conquered the at first disobedient muscular system. The advantages of the position, in taking nourishment, etc., have strengthened the child's will. It *will* sit. Then usually it soon learns to stand—about the end of the first year. After various unsuccessful attempts to hold itself up by chairs, tables, the wall, etc., it suddenly finds that it can stand alone. It is remarkable that this position, peculiar to man alone of all mammalia, is learned by him without any instruction. Let a child alone when it lies on the bed and tosses itself about, give it its own course when it begins to creep, do not disturb it when it struggles, day after day and week after week, to stand—and about the end of the first year we shall find it some fine day on its feet. Whence this purely human expression of the will which, with one stroke, gives to the child the dignity of humanity? The child stands upright before its joyous parents. It has taken unspeakable trouble to raise itself, has attained its goal, and thus given proof that the will has overcome the weight of the body and the awkwardness of the limbs. There lies in this a further victory of mind over matter. It cannot as yet be explained. For the simple desire for things above him or about him explains it as little as the idea of imitation alone, for all his desires are immediately met, and attempts at imitation do not usually begin till later. We can only opine that the great advantage, among men, of the upright position has caused it for ages to be custom, and it has become hereditary. But this does not explain why the well-cared-for child, wanting for nothing, should turn the action of the developing will in this direction. The same is true of the further acquisition of walking, which occurs of itself, even when a child grows up alone. Its beginning is a riddle, for there seems to be no reason for the alternate bending and straightening of the knees when the child stands. It is only possible for it to learn to walk by the repeated attempts at lifting up and setting down the feet. Such flexions and extensions occur, to be sure, also in the bed and in the bath, but their regular alternation while in the erect position is something different, and is probably, like the act of sucking, inherited. It begins months before the first successful attempt at walking, and if the child is allowed to creep about on the knees, it is not long before the full success of walking is attained. It is impossible to ascribe to the child at this date the knowledge of the advantage of walking, the perception that thereby the eye and the ear have more scope, that everything desirable is easier reached. The will, growing with the growing muscular fibres and the nerve-cells, is rather the force which controls the muscles in this way, as it will be most advantageous for all its future, and as its ancestors did before it. The traces of these motor impulses have been so impressed on the central nervous organs, the will has for so many generations trod exactly this path, that the new-born man again and again proves it the best. In other words, the first walking movements are *instinctive;* the *impulse* for change of place is so strong that it is not satisfied by creeping.

Particular instruction in walking, either with or without supporting instruments, is therefore out of place in the nursery. Besides, it is usually begun too early; hence the frequency of crooked legs, etc. Too often the child is not allowed to creep, though this is nature's preparatory school to walking, and tends greatly to mental development. The freedom to move after desired objects, to see and touch them, the opportunity for constant little voyages of discovery should never be taken away from the little one so eager for new impressions. The date of walking varies greatly, according to whether a child has been with other children whose attempts have urged it on, whether it has been helped or instructed in it, etc. The child should walk when it *will*. It was at the end of the fifteenth month that a child carefully watched by me, standing free upon the feet, suddenly and for the first time trotted around the table, swaying and staggering, yet without falling. From this day on it could walk, at first quickly and hastily, almost *trotting*, with outstretched arms, as if going to fall forward, then more slowly and surely. In the following month, it could step over a door-sill. During this time, it was noticed that, as in some cases of spinal-cord disease, the foot was sometimes raised too high and sometimes set down too quickly. The will only partially controlled the muscles of walking. The motor impulse was now too strong, now too weak. The measure of strength was wanting.

Long before this quite advanced development of the will, its growth may be observed in another voluntary movement, that of *grasping*. To follow the development of this motion demands very close observation, because it sometimes goes with a spring from a lower to a higher step, while at other times it makes little advance for weeks. It the first quarter-year, if a pencil is put in the child's hand, the fingers will hold it, and along in the third month the thumb will assist, not independently, but as if it was an extra finger—and the child does not know that it has anything in the hand. It holds the little object mechanically. At this time every child when awake, throws his arms about in the air. Thus it easily happens that a finger of one hand is caught in the other, and by the thumb is held fast, so that it appears as if it were grasped. In reality, however, there is here no trace of a purposed grasping, but the little hand holds longer and faster any objects which accidentally come into it, *without reaching out after them.* The putting of the fingers in the mouth in the early months is also altogether involuntary. When the arms move aimlessly about in the air, a finger easily happens in the mouth, and the fingers, like any other object between the lips, are sucked, because of the pleasant feeling. So this sucking of the hands soon becomes habit, before there is any capability of grasping. The child does not see the mouth, and only feels it after touching it, cannot therefore will to grasp for it. It is rather the accidental touching of the lips by the involuntary movement of the arm which causes the sucking of the fingers. The movement of the hand to the mouth is repeated later because of the pleasant feeling, but without any perception of the causal connection. I first noticed real attempts to seize an object in the seventeenth week. It was a little rubber ball, lying within reach. The child seized near it. When the ball was put in its hand it held it fast a long time, put it to its mouth, held it before its eyes, and regarded it then with a new, intelligent expression. On the next day attempts to grasp objects held before it were more frequent. It fixed the objects and made frequent attempts to grasp them. At the same time the face expressed an anxious attention, like that of the enthusiastic collector who has found a new or rare flower. Another day and this grasping after surrounding objects seemed to give the child pleasure. There was, however, mingled with the pleasure, *wonder*. This was a great step forward. The old Greek philosophers were not far wrong when they said the *first astonishment* was the sign of awakening of the child's mind. All infants look at their fingers with wonder after the first attempts at grasping. Probably they anticipate the contact, and when it comes they wonder at the newness of the sense of touch. Objects are more and more regarded, gazed at, put to the mouth, and passed from hand to hand. Soon now the stretching out the hand as if to grasp something becomes the expression of the strongest desire. At the end of the fourth month for the first time the child stretches out both arms toward the parents, and with an expression of the greatest longing. This transition from grasping after inanimate objects, to seize them, to reaching out after the parents, to draw them near is sudden. On the other hand, the child's own hands and feet seem for many months to be something strange and foreign to it. It grasps them, regards them as any other object, puts the feet in its mouth, bites its own arm so that it cries for pain, and offers its cracker for a taste to its own feet as it does to its wooden horse. There is no trace of knowledge of self,—self-consciousness. Even later the child will strike its own hand when it has broken a plaything. The ceaselessly continued grasping, however, at length leads to perception and knowledge of separate existence and the exclusiveness of the ego. The newly discovered fact that the thing seen and longed for is also that which is touched, and which gives new feelings, especially arouses the child's attention. That which was clear or dark, colored or shining, now appears also smooth or rough, heavy or light, hard or soft, warm or cold, and the child is pleased at this union of two or three domains of sense. It is one and the same apple which is red and green, smooth and heavy, cold and hard, and which smells and tastes agreeably. This union of the impressions of seeing, touching, smelling, and tasting the same object arouses wonder, makes the child consider, and awakes the inborn, insatiable longing of the human mind after the *causes* of the impressions. Gradual perfection in grasping affords nourishment to this longing after causes, especially through *touch*. The child scrapes, scratches, rubs everything it seizes, turns it round, pulls it to pieces, and attempts to put it together again. Even at a time when it still tries to grasp the flame of the candle in its hand, when it still puts the bread in the eyes, on the cheek, or anywhere rather than in the mouth, this union of seeing and grasping is already so complete that the child will carefully pass from one hand into the other even a single hair picked up from the carpet. It grasps with *consideration*. Now the *will* is developed. When the causes of the feelings produced by sight, taste, or any other external impressions of the senses, can be even partially discovered by seizing the objects, then the grasping becomes *voluntary*. Out of the original *impulse* the *will* has developed. The remembrance of the satisfaction caused by a successful seizure awakes at sight of a new object the image of grasping it, and thus the psychomotor impulse to carry out the movement. This impulse is *will*. Weak indeed it is in children, for self-control is yet wanting, yet the stubbornness of earliest youth shows often enough to what a degree the unbridled strength of the will may go. In his little circle the passionate *no* of the boy is often stronger than the parents wish, and very early will stands opposed to will. But is this not equally so in later life? The will of man manifests itself in various ways. It calls to life and it kills, it builds up and tears down, it carries on war and makes peace, binds and loosens, threatens and flatters, wounds and heals, makes happy and renders wretched. It overturns the surface of the earth and seizes upon the development of the animal and vegetable worlds, ever more and more subjecting to itself the forces of nature and overcoming all opposition to the course of its development. The power of will is the strongest weapon in the struggle of existence. Men follow a man of strong will, and he forms his surroundings according to his own laws. But even such a man was once a child, and had at first no will, and then a weak one. It developed into the strong one later, by opposition to others. Hence, in education nothing is so important as the ruling of the child's will, so long as it will submit to rule. Simple directions have no effect unless they are carried out with iron determination, and never broken by those who give them. The teacher must be also an example to the child, not only preach truth but also be truth—above all direct the child's will to the taming of evil traits. The child should see nothing, hear nothing, observe nothing which could be detrimental to the forming of the will. The impressions upon the organs of sense must be regulated.

But the senses are at first very slightly receptive. Let us consider them. We notice first the slight sensitiveness of the skin in the new-born child. In the first hours of life it is, to be sure, easy to call forth a cry by a blow or by rough handling, but this is a reflex action of the muscles, like the first inspiration, and not an expression of pain, for many experiments which are painful to adults may be tried upon new-born children without effect. Thus, pricking with needles in the nose, lips, or hand occasions no sign of pain, though the prick may draw blood. If the eyes are touched they close slowly, and wetting them in the bath does not cause them to shut. Many other experiments demonstrate the same fact. After one or two days we can usually notice an increase in sensibility, and, as is known, the child is especially sensitive to warmth. The first bath is also the first sensual pleasure which the world offers to the new-born. The impressions of temperature appear, however, to have a much less important specific psychogenetic meaning than the impressions of touch. Anaxagoras said none too much when he stated that man differed from the beast in that he had hands. The hands of the child are the *feelers* of its mind. They are the pioneers and eclaireurs to its army of desires in the conquest of the world. Through the excitement of the touch-corpuscles in the finger-tips and in the lips, the babe gains its first knowledge of things without itself, and in the differentiation of the impressions made by touching its own skin and foreign objects, the foundation is laid for self-knowledge on the one hand, and a gaining of experience on the other. The fingers of the babe are in fact its instruments with which it investigates all that comes within its reach. The importance of touch may be seen in the high degree of intellectual development reached through it alone by blind deaf-mutes. These cases are, however, rare, and their instruction laborious, for no one sense can take the place of another. On the other hand, even early in life, all the senses unite in the development of the power of reception and feeling—even those most undervalued, taste and smell.

In regard to the first of these, Prof. Kussmaul, more than twenty years ago, published some interesting observations. He found that all new-born children could differentiate between strong impressions of taste. If the tongue was wet with a solution of sugar it reacted otherwise than when wet by a solution of quinine or acid. With the latter the children made all sorts of grimaces, as unmistakable expressions of dislike, and the "bitter" face was different from the "sour" face, while the active sucking and the expression of satisfaction with the sugar left no doubt that the nerve of taste in the new-born had the power of differentiating. The old idea that children will take anything offered them without knowing the difference is wrong. It is only true of fluids of very weak taste. They will only take drugs when much sweetened, and when children make a mimic "bitter" face over something intensely sweet, it is only on account of surprise at the newness of the strong impression, for at once after the first trial they desire more. Every strong, new impression is at the first instant unpleasant, a sort of fright. The astonishment at the unusual keeps back the knowledge of whether a pleasant or unpleasant feeling arose from it. Adults often have the same experience. Sugar is gladly taken by all new-born children after the first surprise is over. I have found the same condition in new-born animals, who astonish us by differentiating between different substances without having had any experience in taste. Even the little chick, just out of the egg, knows the difference in the taste of what is put before him. When I put before it the white of egg boiled, the yolk, corn, etc., it picked at them all, as it did at the dirt and stones about, but then ate only the yolk, and an hour afterward, when the experiment was repeated, it went straight for the yolk alone, pushing the others aside. This preference must have been due to an inborn capability of differentiating in tastes. The sense of taste seems indeed to be the first of all the senses to make clear impressions which are taken into the mind. The taste of the milk first received remains firm, so that another milk is often only tried and then put away as soon as the unusual taste and smell have been *compared* with that first received.

Thus *memory* and *judgment* first arise in the domain of the sense of taste. The impression of smell is, however, through life, as well as at its beginning, hard to separate from taste. New-born children certainly do not at first have impressions of smell without taste—at least they cannot separate them. The nerves of smell are not excited by breathing through the nose, or even filling the nose with air, but after respiration is well established most children can tell by the smell whether they receive the same nourishment as at first or not, and often refuse a new nurse whose presence is unpleasant to them. Further than this there are no experimental proofs of the capability of the new-born man in the first days to differentiate particular smells. Attempts with strong odors have only been successful in sleeping children, and in these cases it may well have been the irritation of the sensitive nerves of the nose instead of the olfactory which reflexly called forth the change in the physiognomy. Young animals born blind are, as is well known, led principally by their sense of smell in seeking the mother's milk. The experiments of Biffi and Gudden show the comparatively high development of the sense of smell in young animals. After section of the olfactory nerves they could not find the mother's milk. I have also found that some odors are highly disagreeable to them and others pleasant. As much as seventeen hundred years ago Galen made a similar experiment. A new-born kid was put in a room where there were open vessels filled with wine, oil, honey, grain, and milk. The little, inexperienced animal rose, shook itself, sniffed at all the vessels, and then returned to the milk and drank it. Here it was only the sense of smell that determined the meal, and the preference for the milk depended on inherited memory.

After the first initial stages, *hearing* and *sight* are incomparably more important for the development of the mind than the two lower senses. It is first to be noticed that all children are born deaf. Even the strongest children do not react upon a sharp sound earlier than six hours after birth, and it is often one, two, or three days. We recognize the awaking of this sense by the clasping of the arms and shutting of the eyes at a sudden noise. These reflex motions are the same in later life. When an unexpected pistol-shot is fired, every one opens and shuts the eyes. The fact that small babes give none of these signs, even upon a loud noise, is proof that they do not at first hear. After several days an unexpected noise produces these effects. This deafness is also anatomically explained: the external ear is not open. The Eustachian tube is closed till opened by the acts of breathing and swallowing. The middle ear contains no air and the tympanum stands too obliquely. But after the ear is complete, there is no other organ of sense that accomplishes so much in the development of the mind. The backwardness of the deaf in comparison with the blind shows the superiority of the ear over the eye in this respect.

In the commencement it is the voice of the mother and those about which makes the first impression of sound. Soon different sounds are distinguished, tones and noises differently responded to. It is particularly interesting to note the soothing influence of song, the cradle hymns, compared with the enlivening effect of dance music, about the second month. Certain sounds, as "sch," "st," and the deep male voice often cause cessation from crying, quiet and increased attention, while a shrill sound, like a locomotive whistle, will cause screaming. All these observations show how early a child distinguishes sounds, in spite of being born deaf. The same is true of impressions of light. At first there is a dread of light. At the approach of a candle the newborn child quickly shuts its eyes. Very bright and very dark can be distinguished, but there, at first, the capability of the eye ends. Color, shape, distance, size, motions, are not recognized. The movements of the eyes are irregular, like those of the hands. The one looks left, the other right; the one is open, the other shut; one is still, the other moves. It seems *natural* that in all movements the eyes should turn together, but from the action of the eyes during the first six days we see that we cannot consider this symmetry as inborn. It is gradually acquired. This has been demonstrated by me with great care. Adapting the eye to different spaces begins after the third week. It demands experience. At first the field of vision is made up only of dark and light, and only strong contrasts are recognized. Still this arouses the attention so that many children after a few days turn the face to the window. Then commences the *staring* which is often considered *seeing*, *looking at.* With motionless eyes the babe gazes into emptiness, so that one would think it was fixing some object, especially as from the ninth day onward, it is often the light which is continuously stared at. Closer examination shows that it is not *seeing.* It is only when the light is brought within the range of the already present stare that it seems to be gazed at. It is only after the third week that the gaze is directed to it and the inexperienced eye follows it when slowly moved. But how little understanding there is here is seen from the fact that while the eye follows it the head is often turned from it. Louget has remarked that doves without the cerebrum will follow a light with the eyes. None the less, when a babe fixes and follows with its eyes a slowly moving object, it has a strikingly knowing expression. Remove the object and we have again the stupid, almost animal expression which does not disappear till the second quarter-year. The human expression depends greatly on this voluntary fixing with the eyes of particular objects. Accommodation, or the power of bringing objects at different distances upon the retina by act of will, is then developing and the asymmetric motions of the eyes gradually cease.

Now the power of distinguishing colors begins. One child prefers red; another yellow; all shun black, as well as very shining colors. It is hard to say when all the colors and their variations are distinguished. The date varies. One child knows early all the tones of the musical scale, another never learns them. I know of no child which could tell all the colors before the third year. Blue is usually the last to be rightly named. The distinguishing of form also advances very slowly. Experiments on blind children lately restored to sight by operation are here of interest. They show that the ball is distinguished from the cone, the ellipse from the square, etc., not by the eye alone but also by touch. The same is undoubtedly true of the babe. Many observations show how poor is the estimation of distance in the first years. Grasping at the moon is a familiar example. Even long practice is only of use when the child is much out of doors, and without particular experience mistakes are made all the life through. The same is true in the recognition of differences in size. Even in its third year the child attempts to put its big toys in diminutive receptacles, great pieces of bread all at once in its little mouth, or to span with its miniature hands the largest objects. Another fact is important in this theory of experience. While a sudden change from light to dark makes a great impression, yet there is no appreciation of change of place. In the first two months the quickest approach of the hand to the child's face is not noticed. It is only from the third month on that we observe the quick closing of the lids at the rapid nearing of any object. From this we can see the difference between inherited and acquired processes of sight. The narrowing and widening of the pupils in light and shade is inherited. The quick closing of the lids on the approach of the hand is acquired. It is a defensive action caused by the unpleasant surprise, for the child knows nothing of danger at this time. This defensive motion becomes through frequent repetition a habit and thus reflex, like other defensive muscular contractions. By multiplying such observations and experiments on small children it is possible to follow the advancing developing of the sight in its particulars, and so also with the other senses, but much material must be collected before the foundations of psychogenesis can be made clear. The perceptions of the senses are the only material out of which man builds his world. Their receipts, that which is perceived, is the ground from which the feelings and passions grow. The emotions of the child, its likes and dislikes, the awakening of the feeling of duty, the commencement of the formation of his character, the first glimmer of his talent, these all depend, first of all, on the development of his senses. But there has been so little of regular and connected research on this point that only isolated cases and facts are on record.

But first we must study the *speech* of the child, the only means of communication and explanation. This study is the most important point in the recognition of the child's mind and the operations of the understanding. It promises the brilliant clearing away of the secretive darkness of the subject, for it is only with the aid of speech that the man can announce the condition of his understanding with certainty. I have not spared the pains of studying day by day every sound uttered by a child, and have reduced them to writing, and shall publish a work on this particular branch of the subject. At present I only bring forward a few points of general interest. If we wish to answer the question, " How did I learn to speak " or, what is the same thing, " How is the understanding developed," we must first carefully study the mien and gestures of the child before it can speak. Too great influence has been ascribed to imitation in explaining the mimic motions of the child. The first smile and laugh, for instance, are not imitative, but inherited, like crying for pain. Many gestures, like clasping the hands to pray, are learned from the nurse; the shaking of the head for no and yes is partly learned from the nurse, partly imitative, and apparently partly inherited. It is extremely hard in children to exclude the influence of imitation, one of nature's strongest forces, and, where it is not excluded, to separate it from inheritance. We are greatly aided here by the study of the faces and gestures of children born blind. But children born totally blind are rare, and in those who become blind later there may remain so much remembrance of imitated gestures that it is again difficult to separate inheritance and imitation.

How is it now with articulate speech, the only difference between man and beast which is recognized by everybody ? It would be hard for any one to declare that a child could be born which should immediately speak, or that a child could learn to speak without imitation. At the same time articulate speech cannot be called altogether and entirely acquired or absolutely un-inherited; for, in fact, all the qualities of the human organism which continually periodically repeat themselves are inherited. It might be said that inheritance is one form of the law of indolence or the vis inertiæ in the domain of nature. What has ruled regularly through many generations is named hereditary. It makes no difference whether it is in regard to certain organs which produce the sound, or certain processes like crying and singing, or the voice itself. When for a hundred generations speech—not a certain language, but speech—has existed, has improved or deteriorated, then there is no reason why it should not be called hereditary. Hereditary and inborn are not synonymous terms. The teeth and the beard are hereditary but not inborn (*angeboren*)—only the tendency, the capital stock for them is inborn. So speech is not inborn but inherited. The stock, the tendency to it is inborn. When any part of the complicated mechanism of speech is wanting—vocal cords, the ear, the cerebral centre of speech—then it is true that the child does not learn articulate speech; but that the tendency, the predisposition is there is shown by the fact that the child in other ways, by writing, by the finger-alphabet, etc., learns the same speech as its ancestors. There are no facts which show so clearly the original independence of the impulse of speech, of the organs of speech, and at the same time the dependence of the finer development of speech, on the integrity of the whole mechanism. We hear the slightest organic defect. Yet it is not the organs that determine the speech, but vice versa. The need of companionship created the machinery of speech, this is inherited and reacts again in a decided manner on the kind of speech in the child.

If one follows daily the sounds uttered daily by the child from birth on to the time when it can understandingly use its mother's speech, he will find here the Ariadne's thread which leads through the perplexing labyrinth of appearances. There is no greater intellectual feast for the psychologist than observation of this through the thousand and one days with which the life of man begins and in which the speech develops from the first reflex cry. At first undistinguishable, gradually flowing slowly and interruptedly out of undiscovered springs, then bubbling forth with more sparkle and apparently unchecked, then slowly becoming freed from unnecessary concomitants and more ordered and clear, clearer and more flowing, until at last the placid stream of connected speech gives witness of the dominion of the understanding over natural impulse, of the victory of will and the growth of thought. Any one who, unbiased by previous opinion as to the origin of speech, will hold close to observation will recognize how wrong is the prevailing opinion that the child, before it can learn its parents' speech, must unlearn its own peculiarly articulated speech. At first only vowels are uttered, especially â and ā, but even in the first five weeks the sounds of the voice are so different that we can determine from them the mental state of the child. The periodic, interrupted cry of hunger, the whimpering of cold, the high, piercing tone of pain, the laugh or crow of joy; these are easily distinguishable acoustic expressions of life, partly reflex, partly expressive. In the seventh week I heard the first consonant, m. But the gentle murmurings of the child cannot be put on paper. It moves all the muscles it has at his control, especially those of the larynx, tongue, and lips. During the motions the expired air often makes sounds which the child loves to repeat, but which seem to belong to no language, and it is as impossible to reduce them to paper as to draw the manifold motions of the extremities. In the seventh month m, b, d, n, r, rarely g and h, and very rarely k could be distinguished. Gradually the voice becomes more and more surely modulated to express the humor. When the child desires some object it not only stretches out the arms and looks toward it, but also utters the same sort of sound as when it wants its food. This combination of movement of the muscles of eyes, arms, and speech is a great advance. At the same time short syllables, pa, at, ta, ba, da, ma, na, become more clear and frequent. They have no meaning and are only the involuntary result of the exercise of the apparatus of speech.

Toward the end of the first year begin the first imitations of sounds, though very imperfect. Some children begin this earlier, but as a rule very early and clever mimicry is rather a sign of want of mental development than of understanding. The state of the latter may be much better judged at this time from the *capability of differentiating words heard.* The child turns the head when called; by a little teaching learns to "shake hands," etc. Still at the beginning of the second year the understanding of the child for the jargon of the nursery is not greater than that of the well-trained hound for the hunter's commands. The enormous intellectual difference between the trained animal and the child is shown, not so much in the fact that the child connects certain sounds with certain objects or changes, as in the fact that it *answers* with a word or even a syllable, as if responding. One of the first of such words (in German) is "atta," meaning usually "out." The words "pa" and "ma" are not connected with the parents for months after they are used. In the third half-year there is a great advance in the imitation of sounds. Objects which have been repeatedly shown and named to the child are now pointed out by it on the asking, and attempts are made at words frequently heard, for instance, "bibi" for "bitte" (please), "mimi" for "milk." It did not strike me that the use of such words stamped the child at once as an intellectual being, but rather the expression and gestures were still the most important means of communication and the words simply accompaniments. On the contrary, the first token of beginning reason usually comes suddenly and unexpectedly. The child said "atta" (out) when the lamp which was lighted had been shaded by an umbrella. Often as it had heard it on going out, it had never heard it in this connection. It itself discovered the likeness in the very different processes of going away and darkening the light. It used the word to express the change in vision of things produced by putting out the light. Next the shutting of a fan and the emptying of a glass was expressed in the same way. There is, therefore, *thought* or *consideration without word expression.* It is expressed rather by gestures than by words, and it uses later many words of which it does not know the meaning. The surroundings have great influence on the development of speech, also the incredible flexibility of the infant's tongue, whose motions we cannot imitate. Any young child can learn to speak perfectly any language, but it is almost impossible for an adult to get the exact pronunciation of a foreign tongue. But the child learns the mother-tongue by a different method. It begins by understanding the sense of what is said to it and the words come afterward. The scholar first learns the vocabulary and words of a foreign language and then the meaning.

The so-called children's language, on the other hand, is made up of inarticulate sounds, expressions, gestures, and broken fragments of words. It makes its wooden blocks and paper figures talk to each other before it can speak itself. The preparatory studies are so various that the learning to speak is a riddle to the keenest of us. The child cries, laughs, sings, squeaks, crows, etc., and understands what is said to it long before it speaks, and after it has touched and tasted again and again, after it has attempted to imitate a name and failed, after it at first could not repeat it and then would not—all at once it says it of its own accord. It does not speak with one single meaning to a word, but one word is made to signify several thoughts. Thus "hot" may mean "the milk is too hot for me," or "I must not go near the stove," etc. Then comes the time when two or three words are joined together, and from this point it is not far to the formation of a complete sentence. Mistakes are made for a long time, but they slowly disappear. There is an extremely interesting and highly surprising parallel between the failures of childish speech and the failures of speech in an adult in whom disease has disturbed certain parts of the brain. All kinds of disturbances of speech by disease find a counterpart in the child. On account of the disease the man is *no longer* able to speak correctly, the undeveloped man is *not yet* able to speak correctly. In one the functions have been disturbed, in the other they are not yet developed. One condition helps to understand the other, but I cannot here go into this branch of the subject as the material is too rich.

It was only my wish in this article to sketch in an unprejudiced way some of the necessary fundamental steps in the development of the child's intellect and to show the importance of its study. Its poetry is not thereby disturbed. The mother finds the charm of the babe's eye none the less because the father studies its motions.

Truly, when I look over my work, the year-long attempt to fix certain points in the mind's development, then it seems to me as if I stood upon the bank of a glistening stream which ever widens and flows more rapidly by, and into whose clear water I searchingly gaze without finding the bottom, even though no troublous ripple disturbs its surface. Astonished and dumb we stand before the eternal riddle of existence. Before we note it the helpless child is a being like ourselves. Our own youth glides by before we are aware of it. We cannot pierce the charming secret.

Klar ist die Seele des Kindes. Sie zeigt sich uns immer natürlich,
Doch unergründlich zugleich, bleibt sie das grösste Problem.[1]

A CASE OF PRIMARY CANCER OF THE KIDNEY.

BY
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Primary carcinomatous degeneration of the kidney, notwithstanding the assertions of some medical authorities to the contrary, must be classed among the uncommon, if not indeed the rare diseases. That this is true can be verified by the past history of medicine, as contained in its literature, as well as by the experience and observation of the active practitioners of our own day. The following case, which came under my treatment, and with which I was connected, directly or indirectly, until its fatal issue, in its clinical history and pathological anatomy is typical of that disease.

Laura B., age six, of excellent German parentage. Both father and mother are robust and vigorous. Careful investigation gives a family history of no hereditary taint of any kind whatever. She was the eldest of a family of five children, and had always enjoyed excellent health. With the exception of an attack of catarrhal pneumonia, for which I treated her when an infant, she had escaped the usual diseases so common in early childhood. A short time previous to her last illness, which began about midsummer 1879, she had what her parents supposed then to be measles, but, although I did not see her at the time, I am disposed to think, from their statements and description, that they were mistaken in their opinion, and that the cutaneous disturbance was a sympathetic result of deranged digestion; of that, however, I cannot speak positively.

The first indications of her last sickness were manifested in August, 1879. She was then five years old, and with the exception of the ailment referred to, was, as far as I can learn, in her ordinary physical condition. She was permitted to sleep in a freshly painted bed-room, with little or no ventilation. Almost immediately, the following day if I mistake not, she came to her mother complaining of "belly-ache," as she termed it, and supposing her to be suffering from colic they gave her the ordinary domestic remedies, but with only partial relief. After several hours she was relieved, much to their surprise, by passing a large quantity of urine, intermingled with clots of blood. Her suffering immediately ceased, and her general condition was about as usual. This was the first occurrence of *hematuria,* and together with the pain, constituted the first symptoms, subjective or objective. How long the morbid process had been developing certainly cannot be known. Her mother, having been recently confined, called upon her medical attendant to treat the child, which he did, doing all that could be done under the circumstances, although from the nature of the case he did not feel justified in giving a diagnosis.

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[1] "Clear is the soul of the child: it shows itself natural ever;
Unfathomable withal, it remains the most intricate problem."

The child was then brought to my office by her father, who stated "that he wanted a prescription for his little girl, who every now and then passed bloody water." On examination I found her to be in fair physical condition, with no evidence of any serious lesion offering itself, and from the history of the case I was inclined to attribute the difficulty to an irritation of the urinary organs from absorption of the paint. The thermometer and the pulse did not indicate active inflammation. Uncertain as to the actual cause, I treated her symptomatically, so to speak, and prescribed the usual remedies. The patient left, and I neither saw nor heard anything from her for several weeks, when the father returned and stated "that the hematuria was even worse than before. That the child would suffer excruciating pain for hours at a time, sometimes by day, often at night, which would only be relieved by the exit of a clot of greater or less size, together with more or less bloody urine, and he requested that I should call and see her." I found a very marked change in her condition for such a comparatively short space of time. She was anemic and debilitated from pain and the loss of blood. The passage and lodgment of the clots, as well as the act of defecation, were so painful that she refrained to the last moment. During the act she would suffer agony, in the intervals she was comparatively comfortable. She had fair strength and appetite. Thus far palpation and inspection gave no evidence whatever of any organic lesion. Most careful consideration of the symptoms, both subjective and objective, as well as thorough microscopical examination of the clots, as well as examination of the urine, were insufficient for making a diagnosis. The symptoms were sometimes suggestive and suspicious of vesical calculus, and I frankly confess that I was tempted to make an exploration with a sound, but did not. Thus far the symptoms seemed to locate the primary trouble as in the bladder, and yet a glance at her general condition was sufficient to show that some morbid process was undermining and preying upon her vitality. Under these circumstances I could only prescribe palliatives, principally anodynes, to be given *pro re nata.* Quite an interval of time elapsed before I saw her again, and as before, her condition was worse by far. She was much more debilitated, and what made the change so apparent was the presence of a tumor which had developed in the mean time, and from its size already must have been characterized by a very rapid growth. During this period I learned from her father that she had been seen and treated by several medical gentlemen, one of whom made a diagnosis, viz., renal abscess. The tumor had commenced in the right lumbar region, and had developed so as to occupy the whole right side, bounded by the diaphragm above and extending downward into the inguinal region. The natural contents of the right side of the abdominal cavity were displaced over to the left. The appearance of the tumor was not regular and symmetrical, as over the lower portion, anteriorly and close to the median line, it was lobulated. The size and appearance of this lobe, so to speak, gave the impression that the growth had developed posteriorly to the kidney, and that the kidney was mechanically pushed forwards, and was now superimposed upon the tumor. By palpation the whole tumor was found to be fixed and immovable, and the lobular portion could not be separated from the rest. By its upward development it had displaced the liver forward, upward, and to the left. The pressure of the liver forwards against the abdominal wall made the integument very tense and projecting, giving the appearance of a second, separate tumor just beneath the sternum.

The superficial abdominal veins were very much enlarged, and formed over the walls a tortuous network. In the beginning, to the touch, the tumor was dense and resisting, but with astonishing rapidity it became less and less consistent, and eventually the whole mass, especially the lobulated portion, gave to the touch the most deceptive sense of fluctuation; indeed, one seldom sees it more marked in a ripe abscess. This character continued until the end. Her general condition was that of extreme marasmus. Her color was muddy and sallow; at times somewhat jaundiced. Her features were sharp; her eyes were sunken, and her emaciation was so great that she seemed only the bony frame-work covered with integument. Her abdomen was very prominent, and formed a striking contrast to the rest of her body; her legs were very markedly edematous, and had long since ceased to be of any use in locomotion or even to support the weight of her body. The greater portion of her time was spent in an infant's carriage, being wheeled here and there according to her childish caprice. She was always tired and indisposed to exert herself. Her appetite was quite good and so continued. She had a special craving for sulphur, of which she daily partook. Her stomach was never irritable, never being troubled with nausea or vomiting. Except in the beginning, her bowels moved daily, even to the day of her death. As to pain, this seemed to be almost entirely dependent upon and connected with the hematuria—especially the passage of clots. Pressure upon the tumor was not painful, neither was she uncomfortable on account of its weight. In regard to the *urine*—as to quantity it was about normal in the aggregate. It was frequently passed irregularly, and often, owing to mechanical interference, a greater quantity was retained in the bladder. Yet the actual amount did not vary much from a healthy condition. *The urine contained no cancerous masses at any time.* Its chief abnormal ingredients were albumen and blood. There were at no time any uremic symptoms or any apparent efforts at elimination vicariously of those elements which find their outlet from the system through the kidneys, and we therefore conclude that the function of the kidneys was accomplished, and that by the one remaining healthy.

Thermometrical observations showed no febrile disturbance during her sickness, and the changes in the pulse that were noted were due chiefly to debility. Her respirations were hurried, markedly so during the latter days, due to interference of action of the diaphragm and anemia. During the last few weeks of her life she had a short, dry, hacking cough. There was at no time during her sickness any cerebral disturbance, her intellect being perfectly clear until the end of life. Hematuria, being the first symptom of any importance, continued to the close, varying in amount of blood; sometimes giving anxiety on account of the quantity, but was chiefly significant on account of the severe pain caused by the passing clots, which seemed as the disease advanced to grow larger. Some were of the size and shape of the little finger. Careful microscopical examination of the clots revealed nothing pertaining to cancer; they consisted of blood alone. (I take much pleasure in acknowledging kind microscopical assistance from Profs. Kebler and McKenzie of this city.) The little patient very gradually grew weaker, and died finally from asthenia.

Autopsy.—Assisted by Drs. Hewitt and Schwab I proceeded to make a post-mortem examination, twenty hours after death. I found very marked post-mortem rigidity, with very extreme emaciation. The natural contour of the abdomen was much changed, the entire right side being greatly enlarged, beginning at the diaphragm above and extending downwardly into the inguinal region. Abdominal section showed a slight effusion. The abdominal wall having become quite tense from the outward pressure, as soon as the incision was made the tumor was visible.

The transverse colon lay across the tumor anteriorly. The new growth occupied the whole right side of the abdominal cavity, from the diaphragm above, which had been pressed upwards as far as possible, to the upper pelvic strait below. Posteriorly it was in apposition with the costal wall and vertebral column. It was fixed and immovable, and had contracted adhesions in every direction with the neighboring structures. These adhesions had to be broken up by the hand to insure removal.

Palpation of the tumor afforded the impression as though it were a cyst, and when laid out on a plane surface it would flatten out and have the same appearance as an ordinary bladder, partially filled with fluid. One was instinctively very careful about handling it, and it really seemed ready to burst open with the slightest touch. The color was of a uniform bluish purple, about the same hue as blue clay, perhaps a little darker, with a somewhat glistening appearance. The weight was between eleven and twelve pounds. Examination of the tumor, after removal, showed that it was incapsulated in a strong fibrous tunic, which could be quite easily detached. It was irregular in shape when *in situ*, the irregularity being due to the lobulated portion, which projected from the anterior, inferior surface; but when removed from the body, its own weight served to flatten it out. On section, the tumor was found to consist of a mass of cerebriform substance, a large portion of which had undergone fatty degeneration. In consistency, it was so liquid that it readily ran off the table upon the floor. The contents were homogeneous, closely resembling the white substance of the brain. Blood-vessels were not markedly numerous, although there was a good blood-supply. The kidney had been transformed into an encephaloid mass, with no evidence of any secreting structure remaining. Microscopical examination revealed the characteristic cancer-cells very distinctively, and set the diagnosis at rest. There were no organic changes in the lungs, except at certain parts, wherein was evidence of passive hyperemia. The heart and pericardium were slightly below the normal size.

Liver.—The liver was found to be in a condition of secondary carcinomatous degeneration, metastatic. There were multiple nodes of cancerous infiltration, the intervening tissue being apparently healthy. The nodes were principally on the surface of the liver, but some were more deeply seated in its parenchyma. There were fifteen or twenty of these spots, varying in size from that of a three-cent piece to a half-dollar coin. They varied in color from white to yellow, and, like the primary tumor, had undergone fatty degeneration. In regard to their density, some were of the consistency of cheese, while others were much softer, being fatty. They appeared on the surface of the liver as smooth, rounded elevations, while over some the capsule was broken. The volume of the liver was not changed perceptibly, although the color seemed to be somewhat darker, which, perhaps, may have been owing to the contrast between the normal hepatic substance and the whitish nodes. The right extremity of the organ was especially involved from the coalescence of several nodes, which, having undergone fatty changes, had destroyed the continuity of tissue and left a broken and ragged appearance.

The lower urinary organs were examined carefully, and found to be free from disease. Calvarium not removed.

Cancer of the kidney occurs but seldom. Some reliable authors omit it entirely; others give it but little more than a passing notice, while a few treat it quite at length. Steiner speaks of only four cases of this disease as a primary trouble out of one hundred thousand cases of children's diseases met by him in the Hospital for Children. Ebstein and Roberts treat of it quite satisfactorily. The cause of cancer remains unknown. Virchow, with others, assigns chemical irritants as a very probable cause of cancer of the kidney in some instances. In our case, the nearest approach to a cause is the absorption of paint constituents during sleep, and which was immediately followed by the symptoms given above. However, this may have been only an exciting cause, occurring in an "individual predisposition" referred to by some authors, or may have had no bearing on the case whatever. According to statistics, the age when we may look for cancer of the kidney corresponds with the extremes of life, early childhood, and old age, the male sex being more frequently attacked.

In addition to the usual characteristic signs incident to cancerous infection in general, the symptoms are few by which we can diagnose the affection in the kidney, none by any means pathognomonic, as the presence or absence of any does not indicate, nor contraindicate of themselves malignant degeneration of the kidney structure; and yet, when all are present and well-marked, especially in young subjects, one is tolerably well justified in making out his diagnosis, especially if associated with suspicions of heredity. Hematuria, followed by a tumor, constitutes the main symptom. Pain is a negative sign, as it occurs in connection with various other disorders of the urinary system. Before a conclusion is reached, a differential diagnosis must be made between a possible ascites, impacted bowel, hepatic or splenic enlargement, ovarian or uterine tumors, disease of the mesenteric glands, the various diseases of the kidneys, and other abnormal conditions of the abdominal viscera. To do this is by no means always an easy task, and requires very careful and patient study. The prognosis is unvaryingly bad. There is but one issue to be expectd. Sometimes the end is delayed longer in one case than in another. In the case given, fourteen months was the duration, according to the best means afforded me for calculation. Some cases are recorded which cover over a longer period. Therapeutical measures, either medical or surgical, in these cases avail but little, and must be principally confined to anodynes to relieve pain. Tonics are certainly indicated, and hemostatics to moderate or check the flow of blood are recommended, but, in the case given, were of no appreciable benefit. Surgery offers no encouragement.

OBSERVATIONS ON PERTUSSIS, BASED UPON AN ANALYSIS OF THREE HUNDRED AND SIXTY-ONE CASES.

BY

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I PROPOSE, in this paper, to present the results of my experience and observations, during the past ten years, in relation to pertussis. The cases which I shall use for this purpose have all been treated in public institutions devoted to children's diseases, and thus fortunately furnish records upon which to base tabulated results. The notes of many cases were not kept as complete as could be desired, but, upon the whole, sufficient data have been gathered from which to select some interesting information.

Pertussis has been chosen as the subject of these observations, not so much on account of the interest which is involved in the disease itself, but because of the sequelæ which often follow, and the complications which may occur in the course of the disease. Very few deaths are ever ascribed to pertussis directly, but the mortality from diseases of the lungs, brain, and general system which are induced by it, holds a prominent rank in the record of mortuary statistics. According to West, it ranks in London fourth amongst the causes of death below five years of age. When it is remembered that pertussis is a specific contagious disease, acting in every particular upon the general system in the same manner as the specific eruptive fevers, the interest in its observations will at once be heightened.

The records which I have prepared have been divided into two series. The first series of two hundred and fifty-eight cases were observed during my charge of the class for children's diseases at the New York Dispensary, from 1871 to 1876; the second series of one hundred and three were observed in the Out-door Department of the New York Foundling Asylum, from 1874 to 1881. This plan is adopted more especially because, in the last series, none of the patients, out of a total number at all times of over eight hundred, were over six years of age, and because more accurate knowledge of results has been obtained from them.

First Series.

Total number of males	114
Total number of females	144
	258
Both sexes under 1 year of age	59
Both sexes from 1 to 5 years of age	160
Both sexes above 5 years of age	39

Of those above five years of age, one was a girl thirteen years old, one a girl twelve years old, and one a boy twelve years old.

Second Series.

Total number of males	41
Total number of females	62
	103
Males under 1 year old	15
Females under 1 year old	24
Males from 1 to 5 years of age	26
Females from 1 to 5 years of age	38

There is scarcely need to direct attention to the fact presented by these tables, that girls are more frequently affected with whooping-cough than boys, in the proportion of 2 to 1.50, and that this ratio appears to hold good for all ages. This agrees with the experience of my friend, Dr. P. B. Porter, of this city, who also considers that girls suffer more severe attacks than boys. It is also corroborated by the statistics of Unruh, of Dresden, based upon an analysis of one thousand nine hundred and fifty-two cases occurring in the Out-door Department of the Hospital for Children in Dresden (*British Medical Journal*, June 7th, 1879). It will also be seen that pertussis attacks children from one to five years of age more frequently than at any other period. In this respect, it follows the contagious eruptive fevers. The fact that at this period of childhood the nervous system is in a highly sensitive state, due to the process of dentition and rapid development of the perceptive faculties, will readily explain the reason why a disease, whose principal feature appears to be of a nervous character, affects the majority of children at this age. Fortunately, pertussis does not attack such a large number of children under one year of age, for at this period it is extremely apt to result fatally, owing to complications of convulsions and catarrhal pneumonia, especially in infants of a rickety or strumous diathesis; and to exhaustion, due to the early age of the infant. Above the age of five years, the danger of complications in pertussis grows rapidly less, and the disease, as a rule, runs a harmless course.

In regard to the season of the year when pertussis is most prevalent, it was found that for the combined series there were in January, 27; February, 22; March, 22; April, 23; May, 24; June, 30; July, 41; August, 42; September, 42; October, 32; November, 40; December, 16. It would thus appear that the affection was more prevalent during the summer and fall months. Unruh's statistics agree with mine in this respect, especially as regards the month of August.

Nothing especially new in reference to certain symptoms of the disease by which it can be recognized in the *earliest* stages can be offered. I have frequently observed a continuous rise of temperature, moderate in degree, lasting a week or more. This fact, taken in connection with a cough occurring in frequent short paroxysms, without the physical signs of a bronchitis, is regarded by Trousseau as one of the most reliable early indications of pertussis. The temperature rarely rises above 101° F., though in exceptional cases it may rise to 105° F. without any complication being present.

One of the most reliable signs of pertussis, which, in fact, when observed, has been considered as a rule pathognomonic, is the ulcer under the tongue. In the first series of my cases, this lesion was observed in fifteen cases, all of which were over six months of age. It is fair to state in this connection, that the ulcer was not looked for in the first one hundred and fifty cases. It was not always found on the frenum linguæ, but on either side as well. In the first series, it was found as early as the eighth day of the attack, in a boy three years old, who, strange to say, did not whoop. It was seen at the end of the second week of the disease in a child six years old, and in a child fourteen months old it was seen as late as the end of the second month of the disease. In the second series, the ulcer under the tongue was observed in only twelve cases out of the entire number. Every case in which it was found was over six months of age, and dentition had begun. The earliest age at which it was seen was ten months. This was in a girl, who, after recovering entirely from the disease, was suffering four months later with a simple bronchitis. She was seen on the third day of the cough, when the ulcer was detected, and there were present all the physical signs of a bronchial catarrh, such as fine and coarse râles over both lungs, with normal resonance, laborious expiration, and a temperature of $103\frac{4}{5}$° F. in the rectum. She was seen one week later, when all the symptoms had improved, and in another week she was entirely free from cough. This case would go to prove the exception to the rule that the sublingual ulcer is found only in pertussis. In the case of a girl thirteen months old, the ulcer was observed four days from the first spell of coughing, and five days later it had taken on a papillomatous form of growth. In fourteen days from the time of its first observance, it was commencing to heal, as the severity of the cough was moderating rapidly.

The observance of the sublingual ulcer in pertussis, as a new symptom of the disease, appeared to create quite a degree of attention in the medical world in the early part of the last decade, but according to Vogel, it had been described by various German writers as early as 1844. Vogel, McCall, and other authors regard the sublingual ulcer in the light of an accidental lesion, limited to a certain period of childhood when the lower incisor teeth are new and their edges sharp. These writers explain the lesion as caused by the tongue being forcibly protruded against these sharp teeth during the paroxysms of coughing, the frenum being injured thereby. Vogel states that it may occur, as in the case cited above, in simple bronchitis, also in those without any cough, as in a case I shall mention, in the form of aphthous ulceration, especially during dentition. Drs. Delthil, of Paris, and Blake, of England, on the other hand, do not believe that this peculiar ulcer depends upon mechanical causes, but that it is a pathological feature of the disease, and is the primary phenomenon of a general infection, the same as chancre is in syphilis. Dr. Delthil, in a paper on the subject read before the Académie de Médecine (*Bulletin de l'Académie*, February 6th, 1877), reported two cases in which it was observed prior to dentition.

In the twenty-seven cases which were observed by me, all, as before stated, had begun teething. Four of the cases were over four years of age, consequently it was not limited, in my experience, to the period when the lower incisor teeth are particularly sharp. In one instance, in a girl, it was accompanied in the second week of the disease with a general ulcerative stomatitis, with diphtheroid exudation, affecting the soft palate, cheeks, and lips, which eventually developed into a gangrenous stomatitis, and destroyed the patient. In another case of a boy four years old, there was a slight ulcer under the tongue, and at the same time a general ulcerative follicular stomatitis, with a papular eruption over the entire trunk and extremities, which itched greatly. I have also observed the sublingual ulcer in a child affected with follicular stomatitis, who had no cough of any description.

The value of the sublingual ulcer as an early diagnostic sign of pertussis is not great, so far as my observation goes. In the twenty-seven cases in which it was observed, the earliest date of its detection was on the fourth day of the whoop, this in one case only. This would be equivalent to about the eighth or twelfth day of the disease. The case mentioned before, where it was seen on the eighth day in a boy who did not whoop was, in all probability, the eighth day of the paroxysms, though they terminated without the characteristic whoop. In fact, it may be said that the ulcer does not, according to my experience, appear prior to the development of the spasmodic stage of the cough. It was observed that the ulcer began to heal as soon as the severity of the paroxysms were mitigated. It may not be out of place at this point to mention a simple method referred to by Vogel for diagnosing pertussis when the paroxysms are not witnessed by the medical attendant. It consists in pressing the root of the tongue with the finger, when a paroxysm of coughing will usually be induced.

The results of *treatment*, based upon the records of my first series of cases, I am sorry to say, are not very trustworthy, owing to the fact that, in dispensary practice, it is a matter of impossibility to follow the cases to their termination. This statement will be readily appreciated when it is learned that a record of only one death, and that one from convulsions as a complication, has been found out of a total of two hundred and fifty-eight cases. For the purpose, however, of hereafter expressing my preference for a certain method of treatment, it may be well for me to make known the various treatments that I have employed. In the first series, thirty-eight were treated with sulphate quinine, given in large doses, from eight to twenty-four grains, according to age, in the twenty-four hours. My usual plan is to administer the quinine in a strong infusion of black coffee, used cold. Forty-three were treated with a combination of quinine and extract belladonna; forty-four with carbonate of potash and cochineal, given in the syrup of wild-cherry bark; four with carbonate of potash and belladonna; twenty-nine with belladonna alone, both in the form of tincture and solid extract, given in gradually increased doses, until the full physiological effect is produced; eight with belladonna and bromide of potassium; three with bromide of potassium in syrup of wild cherry; twelve with chloral hydrate, given with the syrup of wild-cherry; thirty-six with a combination of chloral and bromide of potassium, given in the last-named menstruum; fifteen with iodide of silver, under which treatment the fatal case recorded occurred; five with inhalations of a mixture of sulphuric ether, sixty parts; chloroform, thirty parts; and spirits of turpentine, ten parts, originally proposed by Dr. Wilde; and twenty-one with various other plans of treatment, including combinations of bromide of ammonium and belladonna, bromide of ammonium and diluted hydrocyanic acid, belladonna and diluted hydrocyanic acid and visits to the gas-works, also the asphalted tube-works (at the foot of 106th street, East river, where accommodations for patients are prepared), as an adjunct treatment. In the second series the results are more accurate and may be depended upon as almost entirely correct. In this series 7 were treated with quinine and belladonna; 24 with belladonna only; 54 with chloral hydrate and bromide of potassium; 4 with iodide of silver; 5 with salicylic acid or salicine, used both as insufflations and internally; 3 with alum and syr. prun. virg. (used in chronic cases); 3 with tincture of drosera rotundifolia, given in doses from a fraction of a drop to 10 drops 3 times daily; 3 with carbazotate or picrate of ammonium, in a solution of 1 grain to the ounce, and a teaspoonful given 3 times in the 24 hours; and 1 with Roche's embrocation, which is supposed to consist of one part of olive oil and half a part each of oil of cloves and oil of amber. Under these various methods of treatment there occurred 10 deaths, the causes of which the following table will explain:

Girl, 3½ years. At the time of attack was improving from a chronic interstitial pneumonia of the apex of 16 months' duration. All the symptoms were soon aggravated, and she died from exhaustion in the fourth week of the disease. Received chloral hydrate and bromide potassium for pertussis.

Girl, 2 years. 6 days after first seen had a diphtheritic deposit on uvula, 1 week later had ulcerative stomatitis, and 2 weeks later, gangrenous stomatitis, from which she died 1 month from date of first visit; received chloral and bromide potassium.

Girl, 3 months. Seen only once; no complication mentioned; received belladonna.

Girl, 2 years. Cough began with bronchitis; seen only once; died at end of second week from catarrhal pneumonia most probably; received chloral and bromide potassium.

Girl, 5 weeks. Had pertussis 3 weeks; attack severe; 24 spells in 24 hours; bronchitis developed in third week which terminated in catarrhal pneumonia, and she died at end of the fourth week; received chloral and bromide potassium.

Girl, 1 month. Began with convulsions: seen on first day of whoop, and not afterwards; died end of fourth week; complication not known: received chloral and bromide potassium.

Girl, 3 months. Had pertussis 2 weeks, no whoop, but became cyanosed when coughing; died 2 days after first seen of convulsions; received chloral and bromide potassium.

Boy, 4 years. Had struma before pertussis began; became weak and feverish: died of exhaustion; received belladonna, afterwards quinine.

Boy, 18 months. No complication noted; was wasting; seen twice; died 9 weeks after last visit; received chloral and bromide potassium, afterwards quinine.

Boy, 2 months. Had cough eight days when first seen; had at first visit bronchitis, which developed into catarrhal pneumonia; died at end of second week; received chloral and bromide potassium.

In order to appreciate the true value of the different treatments above employed, it would be necessary to possess a record of the duration of the cough from its commencement, as well as the total length of time that the patient was under treatment in each case. Unfortunately, in the out-door department of even such a well conducted institution as the New York Foundling Asylum, such a system cannot be carried out. Sufficient illustrations, however, of the benefit of treatment in severe cases have been furnished to justify me in adopting a preference. From the combined numbers of both series it will be observed that 90 cases received the chloral hydrate and bromide of potassium in syr. prun. virg., which treatment I have so far been led to prefer above all others that I have tried. I had used chloral alone, upon the recommendation of Dr. P. B. Porter, of this city, in the treatment of pertussis as early as the winter of 1872. It would seem from the small number of cases in which I continued to prescribe it, that I was not very deeply impressed with its efficiency, and it was not until three years later that I began to use the chloral in combination with bromide of potassium. About the same time, I prescribed the bromide alone or in combination with belladonna in eleven cases, but finally settled upon chloral and bromide as the most effective combination.

In endeavoring to arrive at the best therapeutical results, it is always necessary to have a clear idea of the pathological process of the disease in question. It will be seen from the drugs employed, that pertussis has been regarded both as a specific catarrh and as a neurosis. Trousseau, whom I regard as having correct views on most medical subjects, believes that it is both, and each element of the disease runs a parallel course. The purpose of a separate treatment was to satisfy myself on this point. While I am willing to admit the complex character of pertussis, I am inclined to the opinion that the neurotic element is by far the most important in regard to treatment, as by this means the danger of the most fatal complications of the disease are better avoided. The theory has lately been advanced by Dr. Guêneau De Mussy (*Union Médicale*, Jan. 11th, 1877), that pertussis is a specific catarrh, localizing itself in the larger bronchial tubes and secondarily causing enlargement of the tracheo-bronchial glands, which glands, pressing upon the pneumogastric and inferior laryngeal nerves, cause an irritation of those nerves, manifested in the spasmodic element of the cough. These adenopathies explain, in Dr. De Mussy's opinion, the reason why the spasmodic cough does not set in until the second or third week of the affection ; why the cough may persist for months and years in certain subjects ; why, when the swellings are not completely dispersed and a tendency remains for them to be reproduced, the cough returns after an attack of bronchitis, measles, etc.; and why, when the adenitis is but slightly developed, the spasmodic cough is absent, though there is every reason to believe that pertussis is present. It is very evident that the investigations of Dr. De Mussy are steps taken in the right direction towards explaining the pathology of the disease, but they require further observation and corroboration. If his theory is correct, the proper therapeutics should be directed to the catarrh of the bronchi, and, this being cured, the disease would be under control. It remains to be proven whether or no this can be done. Previous to this time the vast majority of the medical profession have almost ignored the catarrhal element of the disease, and have directed their therapeutics to the neurotic element of the disease.

In the combination of chloral hydrate and bromide of potassium I believe several important indications in the therapeutics of pertussis have been met. While the neurotic feature of the disease has been kept most prominently in view, the specific catarrhal element has not been overlooked. Late investigations have attributed to chloral the property of locally arresting germ growth, and it therefore deserves to share the same value as other remedies regarded as antiseptic, when given internally, besides that of its undisputed sedative action.

It is an accepted view among our best therapeutists that the potash salts certainly possess the properties of promoting tissue changes, dissolving albuminoids in the blood, and rendering the mucous secretions more fluid. These properties would tend to the idea that potash exerts an alterative influence upon mucous membranes, and it has been used largely for this purpose, no doubt with beneficial results. The carbonate of potash treatment of pertussis is very likely based upon this view, and has for years been employed by the profession of Philadelphia. It is reasonable to suppose that the bromide of potassium is decomposed in the system, and while the bromine acts as a sedative upon the nerve-centres, with a special tendency to allay reflex excitability of the larynx, the potash exerts its influence upon the mucous membranes, besides having a slight sedative action upon the reflex nervous centres. Furthermore, the sedative action of chloral has been found to be increased by the bromine salts and vice-versa, so that the chloral may be reduced to one-half the dose by combining it with double the quantity of the bromide. This is a point not to be overlooked in the administration of an article so uncertain in its poisonous effects as chloral, though I have always found, and hazard the assertion, that its action is harmless in children unless given in excessive quantities. Another property of chloral which is worthy of notice in this connection is its influence upon the reduction of blood pressure when carefully administered. This property is of service in preventing the complication of catarrhal pneumonia or modifying its development when already present.

Another complication of pertussis, which in children under one year of age is a most dangerous one, is diarrhea. Here, also the chloral and bromide of potassium are of valuable service, though it may be necessary to add other remedies to aid in checking the bowels. Chloral has been highly recommended in the treatment of infantile diarrhea, and bromide of potassium has become an established treatment in our city amongst certain physicians for this complaint.

My experience in the treatment of pertussis has led me to believe that mild cases of the disease will end in a short space of time under any kind of treatment, while in severe cases it is often a difficult matter to find any remedy that will mitigate the severity of the paroxysms and reduce their frequency, and none will shorten the duration of the disease to any marked degree. I have found that the chloral and bromide, while it undoubtedly moderates the severity of the paroxysms and also reduces their frequency, does not exert any great influence in shortening the average duration of the disease. Thus I present the following case copied from the records of the Outdoor Department of the New York Foundling Asylum:

A girl 11 months old had pertussis 4 weeks; there was a superficial ulcer under the tongue; temperature, 105° F. in the rectum; lips dry; had a very severe attack the week before; became cyanotic. Gave chloral hyd., ʒ ij.; potass. brom., ʒ iv.; syr. prun. virg. and water, of each one ounce; a teaspoonful to be given 3 times daily. Hydrobromide of cinchonidia, gr. ij. every 3 hours to reduce temperature. Two weeks later, temperature 101° F. in rectum; ulcer healed; cough much improved; appetite improved; has some bronchitis; medicine renewed. Two weeks later the whoop had entirely ceased. Here the disease lasted 8 weeks at the shortest, while the paroxysms were mitigated soon after the treatment was begun.

The dose of chloral may be considered large, and was double that usually given at the same age; but the severity of the attacks seemed to demand it, and the result proved that my judgment was correct. Another case will serve to show the effect of the treatment upon the frequency of the paroxysms:

A boy 4 months old had pertussis one month; had 17 spells in the 24 hours the day before he came under treatment. Gave chloral, ʒ i.; potass. brom., ʒ ij.; in syr. prun. virg. and water, of each one ounce; teaspoonful 3 times daily. Record of paroxysms for the following 4 days, kept by the nurse sticking a pin through a piece of note-paper after each spell, keeping a line for each 24 hours: 21, 11, 12, 8. Medicine was renewed, and on the eighth day of treatment and the end of the fifth week of the disease, there were 3 spells up to 3 P.M., commencing to count from 8 A.M.

A case occurring in my private practice will also serve to illustrate the effect of this treatment, both on the frequency and severity of the paroxysms and the duration of the disease:

Jessie M., 4 years old, had pertussis for 2 weeks before she came under my care. Whoops; vomits after coughing; the spells of coughing are very severe. Gave chloral hyd., 5 grains; with brom. potass., 10 grains in syr. prun. virg., 3 times daily. Record of spells: July 23d, 20; 24th, 13; 25th, 23; 26th, 17; 27th, 9; 28th, 17; 29th, 17; ordered double dose night and morning; 30th, 12; 31st, 14; Aug. 1st, 10; 2d, 6; 3d, 12; 4th, 19; all very light; 5th, 10. The spells now became so light, without whooping or vomiting, that a further count was not kept.

I might also refer to the case of a boy six months old, not included in these statistics, to whom I was hurriedly called and found in a state of unconsciousness, his face cyanotic, and respiration suspended, which condition had lasted for four or five minutes. The heart was beating feebly, and I at once used artificial respiration, at the same time making the mother push a large feather down the larynx to clear out the ropy mucus and also, if possible, to irritate the glottis. I soon succeeded in inducing normal respiration, without any whoop, however. I learned that he had had several attacks within a few days almost as severe as this one. I prescribed the chloral and bromide of potassium in free doses for his age and from that time on the spells were of moderate severity, and he made a speedy recovery. I have stated in the early part of this paper that the chief interest attached to pertussis was due to the complications of the disease. The following table will show the frequency with which they occurred in the second series of cases.

Of Catarrhal Pneumonia there were Eleven Cases, as follows:

Boy, 2½ years old; began in the fourth week of disease, accompanied with diarrhea.

Boy, 8 months old; present when first seen.

Boy, 3 months old; began in the eleventh week of disease. Had bronchitis when disease began.

Boy, 2 months old; began in the second week of disease. Had bronchitis when disease began.

Boy, 1 year old; began in the third week of disease.

Girl, 2 years old; began in the third week of disease. Began with convulsions, also diarrhea.

Girl, 6 months old; began in the fifth week of disease.

Girl, 3½ years old; began in the seventh week of disease.

Girl, 3 years old; began in the fourth week of disease. Terminated in fibroid induration.

Girl, 2 years old; began in the second week of disease. Began with bronchitis.

Girl, 5 weeks old; began in the third week of disease.

Of Convulsions there were Four Cases.

Girl, 2 years old; occurred in third week of disease when first seen.

Girl, 1 month old; began with the whoop.

Girl, 3 months old; occurred in second week of disease.

Girl, 2 years old; occurred in third week of disease, with catarrhal pneumonia.

There was one case of capillary bronchitis in a boy two years old. One case of gangrenous stomatitis in a girl two years old. Two cases of struma, both in boys, one three years old, the other eighteen months, developed during the disease. Six cases were followed by struma and one case by rickets. One case had struma when the disease began. A girl three and a half years old had a chronic pneumonia of the apex for sixteen months when pertussis began. The old trouble was rekindled, from which she afterwards died. A girl three years old had hemoptysis together with epistaxis. Two cases had hematuria. A boy four years old had choreic contractions of the muscles of the arm and subsequently of the face three months after the disease began. He still had the cough, but did not whoop.

The greater frequency with which catarrhal pneumonia occurred as a complication of pertussis will be all the more readily appreciated, when the process of its pathological development is reflected upon. The first stage in the evolution of catarrhal pneumonia in pertussis is *collapse* to a greater or less extent of lung tissue. Collapse of the lung in pertussis depends upon the same mechanical cause as it does in bronchitis, with this addition, that in the former disease many more predisposing conditions, such as exhaustion from the violence of the attacks in early infancy, from an intercurrent diarrhea, especially in the summer months, and from the strumous and rachitic diathesis, which the disease itself, through its specific nature, is prone to develop, are present. The severity of the paroxysms plays a most important part in the production of collapse of the lung; for such violent expiratory efforts are made during the cough that most of the normal residual air in the vesicles is expelled; and in an exhausted system, or a rachitic child with soft bones, there is not strength enough left to overcome the external atmospheric pressure upon the chest-walls, and sufficient air to refill the emptied air-vesicles cannot be drawn beyond the thick and ropy mucus that fills the bronchial tubes. The walls of the emptied air-vesicles fall together, the circulation of the blood in the capillaries, owing to the loss of function of the air-vesicles and the imperfect aëration of the blood, becomes impeded, and a gradually increased rise of blood-pressure occurs, producing a hypergenesis of epithelial cells within the alveoli of the collapsed portion, until they are entirely occluded. The effect of gradual and continuous increased blood-pressure upon the causation of catarrhal pneumonia has been brilliantly described by Dr. D. J. Hamilton, of Edinburgh, in the twenty-fourth volume of the London *Practitioner.* I am indebted to his article for much valuable information on the subject.

It may happen that such an extensive portion of lung tissue becomes collapsed in pertussis that sudden death is caused thereby. This unfortunate complication occurred in one of my cases not included in these statistics.

When bronchitis is present as a complication of pertussis, it may be readily understood that the danger of collapse of groups of air-vesicles is rendered immensely greater, and catarrhal pneumonia may almost certainly be expected. The gravity of catarrhal pneumonia as a complication of pertussis may be inferred, when it is considered that out of ten deaths from all causes, four were from this complication, in a total of eleven cases treated.

Convulsions occurring in pertussis are, perhaps, the most fatal complication of the disease, fifty per cent of those attacked in my cases having died.

With reference to the remaining complications mentioned, except in the case of hemoptysis, they offer nothing of especial interest. This complication, according to M. Henri Roger, in a paper read before the Académie de Médecine (*Gazette Médicale de Paris*, Sept. 20th, 1879), is nothing more than a pseudo-hemoptysis, the blood being furnished by the nose, mouth, or pharynx, and almost never by the lungs. This is likely to be the true explanation of the hemoptysis in my case, as there was epistaxis at the same time. Of the two cases of hematuria, little can be said. One occurred while using a solution of picrate of ammonium, one grain to the ounce.

In regard to the influence of change of locality upon pertussis, nothing has been said, because as a rule this plan of treatment is not adapted to the class of patients the record of whose cases form the basis of this paper.

CASE OF HYSTERIA IN A BOY EIGHT YEARS OLD.

BY

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THE patient's name is Charles, aged eight years, born of scrofulous parents. The mother had hysteria since womanhood. The father is a diminutive man; had, when young, St. Vitus' dance; since then, stutters badly. This is the only child they have. He has grown up with all the vices of neglected youth; has taken pattern from his parents, and his temper is absolutely without control. He is deceitful, and knows how to feign sickness in order to draw sympathy. His body is frail, slender, weak; his muscular system poorly developed, his bones very small, and he is pigeon-chested. He does not like to play with boys. His greatest pleasure is to stay in the house and dress dolls. Occasionally, and rarely, he feels inclined to play with those of his own sex, when he will use such violence that he tires all the boys out, even those much older and stronger than himself. His intellect is well developed. He learns, with remarkable ease, all that he wishes to. When two years old, he had meningitis, and the mother says the doctor had to keep him under mercurial treatment, during many months, to save his life. Since that time, he has been very peevish, anemic, and unable to digest his food. Four years ago, my attention was called to the child, when he had one of his usual attacks of convulsion. The spasms were alternately tonic and clonic; there was some foaming at the mouth. The boy had vomited a few times, the matter ejected being mucus and partly digested food. The child was then very anemic and feeble, had enlargement of the cervical glands, nasal catarrh, and dyspepsia. He had had, according to the statement of the mother, these convulsions for a year past, not of regular occurrence, but always preceded for a day or two by malaise, constriction at epigastric region, nervous irritation, pain here and there, and was very apt to cry on the slightest provocation. The characteristics of these convulsions are that they are always preceded by premonitory symptoms; that they never occur during the night; that he always falls on some selected place where he will not be hurt, and that he remembers to a certain extent what has been done during the paroxysm, although he does not readily admit it. The mother always forbids the physician to speak before the child. She says that every time he hears his sickness spoken of, he becomes very melancholy, and is very apt to have another attack. The characteristic of the inter-paroxysmal symptoms is that the child always complains of some pain in a part supplied by either of the following nerves, viz.: trifacial, pneumogastric, intercostal, and sciatic.

His emotional nature is at its highest stage of development, and cannot be controlled by his will. His cerebral innervation is not powerful enough to give him confidence. He is, popularly, a coward, being afraid to venture to do what other boys do without thinking.

Authorities on nervous diseases say that the regular functions of the nervous system depend upon the natural subordination of the spinal activity to the cerebral. This constitutes the harmony of all normal cerebro-spinal functions. In hysteria, this natural order is disturbed, and always to the increase of the spinal. Physiologists have even gone so far as to produce what we might call artificial hysteria, either by increasing the spinal or diminishing the cerebral activity. In this case the boy has been predisposed from an early period by the example of his parents, they being both hysterical. Domestic education has been deficient. Physical training, on account of his illness, has also been neglected.

The means of treatment advised to his parents have been, first, seclusion from his home; second, the open-air physical training; third, bringing the constitution up to its highest point, by administering iron, cod-liver oil, pepsin, phosphates, etc.; fourth, diminishing the spinal activity by drugs, the preparations of bromide giving the best results. The execution of the first has been refused by his parents, and the second only partially done. As to medical treatment, it has been followed with great care, and has produced some permanent improvement. The bromides could not be continued, even in small doses, for more than two weeks at a time; they disturbed his digestive apparatus, and as soon as his digestion became impaired, he grew worse, until it became a necessity to change the treatment. The prognosis in the case has not been good as to cure, although he has improved in strength, has grown very much in size and form, and his hysterical attacks have diminished in frequency and severity.

ABSTRACTS.

1. Roger: Non-Closure of the Interventricular Septum of the Heart (*Gaz. Méd. de Paris*, 43).—HENRI ROGER claims that this is quite frequent. It is accompanied with cyanosis only when at the same time the ostium pulmonale is stenosed. The affection gives a characteristic murmur. It is intensive, extended, and clearly only *one* murmur, begins with the systole and lasts so long that it covers both heart-sounds. It is loudest in the *upper third of the precordial region, in the median line, and is not extended into the large vessels.* It never coincides with other kinds of physical phenomena, nor with functional disturbances such as occur in endocarditis, and it is extremely constant. The simple mingling of the two currents of blood does not alone cause cyanosis. With this pathognomonic murmur the diagnosis may be surely made, especially in young children. R. has watched the affection in six cases, all of which throve well. (R. gives no autopsy in proof of his diagnostic sign and other statements.—J. F.)

2. Zielewicz: Complication of Pneumonia with Cerebro-spinal Meningitis.—DR. ZIELEWICZ relates two cases of the above. 1. A six-year-old girl was taken sick with violent headache and vomiting. After a few hours, she became unconscious, the neck stiff, the sensibility of the lower extremities much decreased. On the third day, clear pneumonia of upper lobe, left side. The nervous symptoms lasted till the seventh day; resolution began on the ninth. The second case was exactly similar, with pneumonia of the right upper lobe. The characteristic point is that the complication did not occur after several days' course of pneumonia (Thomas), but the process was opened with meningitis and the pneumonia lasted after this. Both cases recovered, though death is the rule. (May not both these have been cases of so-called cerebral pneumonia (Ziemssen)?)

3. Parrot: Ulceration of the Membrane of the Mouth in New-born Children (*Gaz. des hôpit.*, III.).—PARROT ascribes all ulcerations occurring in the mucous membrane of the mouth in young children to two etiological moments, athrepsis (non-assimilation) and syphilis. As characteristic of the athreptic form we have the situation in the median line or symmetric points on the sides of this. There are few exceptions to this rule. We find the ulcerations on the frenulum of the upper or lower lip, or of the tongue, upon the alveolar edges—especially on the anterior side—and situated in the median line or symmetrically with this, upon the vault of the palate along the median raphe or on the two well-known white points of the hard palate, or on the junction of the hard and soft palate, just where the ossa pterygoidea project. Small ulcers occur more frequently on the frenulum of the under lip and the tongue than on that of the upper lip, and they show a great tendency to slough. On the jaws they are, as a rule, more superficial and yellowish-white. Sometimes they expose the teeth long before their eruption, on account of which they not rarely become necrosed. The ulcerations are characterized by their *long* shape, but the plaques pterigoides particularly are of a typical character. They are regularly circular or oval, arise from symmetrical gray spots of about 2 mm. diameter, slightly raised above the surrounding pale membrane. The athreptic ulceration following may reach a diameter of 1–2 cm , becomes more and more yellow, and is surrounded by an injected zone. A molecular degeneration takes place, the slough is cast off, and the ulcers heal without scars, though in some cases the ulcers become deep and large, without, however, extending to the bone. They are found *only* in children who are suckled on the breast, and, like the ulcers on the frenula, are caused by the mechanism of sucking, although the predisposition is given by the existing athrepsis.

The syphilitic ulcerations—both the elevated plaques and the true ulcers—are irregularly scattered, have no typical form, their edges are indented, they often are situated on the tongue (which is rarely the case with the athreptic ulcers), on the jaws, more rarely on the hard and oftener on the soft palate. On the tongue, either at the point or the sides, they may reach a considerable size, the small ones being 1–2 mm. deep. The syphilitic ulcers on the alveolar processes are not confined to the median line, and those on the soft palate are most frequently found between the uvula and the arch. Plaques muqueuses were observed by P. only on the upper surface of the tongue. There are, however, cases in which the diagnosis between athreptic and syphilitic ulcers is difficult, and it is better, in a doubtful case, quoad therapiam, to consider them as syphilitic. Children with syphilitic ulceration of the mouth should always be removed from the breast, provided the nurse has not already become infected. The local treatment is the same for both classes of ulcerations: pencilling with alkaline mouth-washes.

4. **Fere: The Fungi of the Navel in Children** (*Le Progrès Méd.*, 51). —CH. FÉRÉ at the Anatomical Society spoke of the well-known fungous growths which are wont to develop around the navel after the falling off of the cord. They occur either as cylindrical growths of about 2–3 mm. thickness, and a possible length of more than 1 cm., or they have the appearance of broad warts, usually not larger than a bean, sometimes as large as a cherry.

In B. 59 of Virchow's *Archives*, Küstner has described them as part granulomata, part as teleangiectatic myxo-sarcomata, and part as adenomata. In some of them he found muscular fibres and histological elements of the intestinal membranes. Dr. Féré has carefully examined two such tumors. One consisted of embryonic tissue, penetrated by large blood-vessels; that is, of lymphatic cells closely pressed together without any interstitial tissue, the walls of the vessels being formed partly of lymph-cells, and party of a thin layer of spindle-formed cells (small-celled scarcoma, covered by a layer of epidermis cells). In the second tumor, the sarcomatous tissue was farther developed, connective tissue was found, and some portions presented the appearance of the fascicular sarcoma. The vessels were of smaller calibre than in the other tumor, in which the fibrous portions had a layer of connective tissue in their walls.

5. **Tschamer: The Existence and Relation of Scarlatina and Diphtheria Contagium** (*Cent. Blatt f. Kindhlkde.*, 23).—DR. A.

TSCHAMER (Graz) took upon himself the thankworthy task of gaining a clearer insight into the existence and character of the contagiums of diphtheria and the acute exanthemata, and, so far as scarlatina is concerned, came to decided conclusions.

He found regularly in the blood of scarlatina patients, as have also other examiners, point- and rod-shaped bodies, the white blood-corpuscles increased, and more or less richly filled with micrococci. The growth and increase of these micrococci or fungi was clearly shown in a drop of blood which was allowed to stand a day under the cover on the slide in a damp room. These fungi and rod-shaped bodies were also found in the epidermic cells from scarlatina patients, in the mucus from the nose and throat, in the feces, and most clearly in the urine, in which were also found either colorless or greenish-yellow spores with nuclei. The microscopic examination of the urine will determine, in doubtful cases, whether an infectious disease is present or not. The spores were found by Dr. Tsch. in the urine in cases of scarlatina, measles, and diphtheria, before any of the symptoms of these diseases had appeared on the skin or mucous membranes. He would considerably enlarge the class of infectious diseases, since many febrile diseases offer symptoms which are not classed among those of infectious diseases, only because they have not been studied as such. The attempt at cultivation coincided in its result with that of Hallier, proving that from micrococci the "pilzsporen" could develop and vice versa, though this is contradicted by the greatest botanists. Urine or epidermal scales from a scarlatina patient were placed on the object glass with a boiled solution of sugar, carefully protected by the covering glass, kept in a damp room, and observed twice a day, and the stages of development carefully studied. The micrococci increase by subdivision or they grow out into rods, which become sooner or later membered. These membered rods for a while are active, then as they become quiet there develop spores which become free by the bursting of their envelope. In rare cases, a dark point forms at one end of the rod and goes on to a swelling; behind such a point new, younger collections of spores form, and in the spores kernels; the space between the dark spots—the spores—becomes more and more transparent until at length the spore is free. Other micrococci grow out into threads which are not membered. They are straight or crooked, become branched and at the ends of the branches spores grow. Others increase in size until a kernel or a round or oval spore is formed, either a colorless, greenish-yellow, or brown one. The colorless spores increase by sprouting, or grow out into fungus forms, but do not attain to self-fructification. Further cultivation developed different races of spores, among them a bluish, and totally different races for measles and scarlatina. For direct inoculation Dr. Tsch. did not use the spores, because they have an investing membrane, but the micrococci which he developed by further cultivation of the spores. He claims that the spores taken into the lungs in respiration may in the same way undergo a retrogressive development into micrococci. From the fungus grown on paste the outer layer was taken and planted on new paste, and this repeated three times, so that there should be no trace left of the original contagion. Dr. Tsch. inoculated his forearm with micrococci developed from these spores, and on the first day and for four following days found micrococci in his blood and urine. His general health remained good. In the next experiment he swallowed quite a quantity of the micrococci. On the second day they were found in blood and urine and he had a slight fever, and on the third day a slight angina. *No rash, but in the second week lamellar desquamation!* What was true of the scarlatina contagium was also true of the diphtheritic. The morphology of the fungus seemed to speak for an identity of the scarlatina and diphtheria contagiums. The diphtheritic fungus is also a verticillium—vert. ruberrimum. Five doves were inoculated with it. Three died on the third day, two recoved after they had for three days lost all appetite, etc. By examining the blood of the doves, a rich quantity of micrococci was found. Only in one case was there found a delicate diphtheritic membrane in the throat.

The point of origin of the verticillium fungus is in rotten wood, and reports show that in England and France diphtheria begins usually in wooded districts and then spreads to the towns. The infection may get into the blood either through the lungs or the intestines. The occurrence of the fungi of scarlatina and diphtheria in the same place of growth accounts for the frequent combination of the two diseases in the same individual. The two fungi are, however, to be considered as two distinct species, so far as natural history is concerned—verticillium (candelabrum ?) and verticillium ruberrimum.

6. Hereditary Syphilis (*W. med. Wochsft.*, 4 *and* 5; *W. med. Blätter*, 2, 3, *and* 4; *Vierteljahrschft. f. Derm. and Syph.*).—An interesting discussion has been going on in several of the German journals on the above subject, especially with reference to the question: Can the offspring of healthy parents become syphilitic when the mother acquires primary syphilis during pregnancy? The discussion was started by Dr. Vayda—an ex-assistant of Prof. Sigmund—who reported a case from his own observation in which hereditary syphilis showed itself in the new-born child of a mother who had acquired her syphilis while pregnant with the aforesaid child. The report was accompanied with a personal attack on Dr. Kassowitz, well known as a children's physician and still better known by his excellent work on hereditary syphilis. The attack was made in such a spirit and form as to give rise to a great deal of feeling in the profession, and especially between the rival followers of Sigmund and Zeissl. Prof. Zeissl, in an article published in the *W. med. Wochenschrift*, abstains entirely from the personal part of the discussion, but states some points on which he differs from Dr. Kassowitz. He claims that through the ovum or semen of parents who are not yet free from syphilis, even though it may be latent, the disease may be transmitted to the fetus, but yet he knows of several cases (9) in which, while one or both parents had secondary manifestations, yet the children, even after the lapse of years, showed not the slightest sign of the disease. This corroborates Darwin's theory that the power of herediting, if we may so speak, is variable, at times weak, capricious, or wholly absent. In regard to the infectio in utero, which is absolutely denied by Kassowitz, he relates the following case: A man contracted syphilis while travelling, returned home to his wife, then five months pregnant, and infected her. In the seventh month of pregnancy she showed a distinct Hunterian induration and symptoms of constitutional syphilis. At full term she bore a fully developed child, who, when eleven days old, was taken sick with pemphigus syphilitica and died from hereditary syphilis. Z. agrees, therefore, with the French authors who claim the possibility of infectio in utero. Z. believes that he can also prove that a healthy woman may contract *manifest syphilis* by carrying the fetus of a syphilitic father—*without her having a primary affection.* A married man, affected with psoriasis palmaris, begat two hereditarily syphilitic children; in the second pregnancy the wife showed psoriasis palmaris. The most careful examination, carried out almost daily for these two years, failed to detect any primary affection. This case and many others similar to it lead him to the above conclusion. Z. has also seen several cases in which men with *recent* but *latent* syphilis have infected their wives *through the semen*—and in almost all these cases it was the later manifestations which made their appearance: painful periosteal nodes, etc. In exceptional cases the mothers of syphilitic children remain healthy.

Dr. Kassowitz (*W. med. Blätter*) replies to the attack of Dr. Vayda. The personal part we omit. The rest is in general a reiteration of what he says in his book. He claims: 1. That the case reported by Vayda is not accurate, because the syphilitic manifestations in the mother did not appear until *after delivery.* 2. His observations in several cases have always shown that children under these circumstances (when in utero at the time the mother contracts syphilis) remain free from the disease. 3. Many other authors have observed this same fact, especially von Bärensprung. 4. That at the time he wrote his book there was no case in print in which it was even half-way proven that a child with syphilitic manifestations was born of parents who at the time of conception neither of them had syphilis. 5. That Bollinger has proved that the "Milzbrand baccillen" cannot pass through the placental membrane.

The case reported by Zeissl is admitted by K. to be accurately described, and he claims that it is the first he has seen opposed to his claims. He does not attempt, he says, to explain how a contagium which *cannot pass from fetus to mother* (here he opposes Zeissl), and which so very frequently does not pass from mother to fetus, should nevertheless, in this case, have found its way through the walls of both vascular systems in a direction toward the fetus.

In this connection, though not as a part of the discussion, I add two interesting cases reported in the *Vierteljahrschft. f. Derm. und Syph.*, by Dr. W. **Grefberg.** 1. A lady contracted syphilis and had various manifestations of it in her twentieth year. When twenty-one years old she married. In the eleventh year of marriage and after she had been free from syphilitic manifestations for thirteen years, and after she had aborted eleven times, she bore a child with very marked syphilitic manifestations. *The father remained perfectly healthy.* 2. A young man of twenty-three years acquired syphilis, and while the disease was still florid (one and a quarter years after infection) he impregnated his wife who bore a child which has shown no trace whatever of syphilis, and is now a year and a half old. The mother also remains entirely healthy, in spite of frequent sexual intercourse with her husband.

7. Vayda: Can Syphilis Acquired During Pregnancy be Transmitted to the Fetus in Utero? (*W. Med. Wochenschrift*, 1880).—Dr. Vayda now publishes the essay he read in the Medical Society in Vienna, and which we have mentioned in a review (see preceding abstract) of an article by Dr. Kassowitz attacking him. Glancing at the literature of the subject, he first names the authors who bear witness to the possibility of the infection of the child in utero. Although this is important, it does not settle the question, and we pass it by. Many authors, on the other hand, deny it, though it is strange, as Vayda says, how the large absorbing surface of the placenta can avoid carrying the contagion to the fetus. He proposes as a name for this method of infection (after Augier Ferrier) *postconceptionell-humoral.* Older authors who were unacquainted with the fact (first established in 1852 by Waller), that the blood may be the bearer of syphilis contagion, are of course not to be considered. The strongest opponent of postconceptionell-humoral infection was Bärensprung. Vayda claims that he often only examined the children for three to six weeks after birth, and then not carefully enough. Even then, from his fourteen cases, he was only able to say that in the course of seven to sixteen weeks the syphilis five times did not appear, while in the other cases it was doubtful. Now, however, comes the point of Vayda's article, namely, his strife with Dr. Kassowitz, who has proclaimed the law that "the syphilitic virus does not penetrate the separating walls between the fetal and the maternal vascular systems in the direction from mother to fetus." Dr. Vayda questions the correctness of the facts given by Kassowitz, calling them "meritoriously erroneous." He questions the authority of his conclusions which he (K.) drew from the observations of strangers (Hennig, Pick), and denies the certainty of the premises concerning the health of the mothers, whom he claims were not carefully enough examined by Kassowitz. At length he comes to his direct proofs of the possibility of postconceptionell-humoral infection. He reports cases from Drepp (1839), Chabalier (1864), and Merie, and at length a case of his own, in which he claims that he proves with certainty that a previously perfectly healthy mother was first infected in the seventh month of pregnancy by her husband, who was himself infected two and one-half months before. The exact dates were these: Infection of the man between June 20th and 24th, infection of the wife September 9th (seven months pregnant). October 17th, the wife had a hard chancre and indolent inguinal buboes. General symptoms appeared in the man August 26th, in the wife *not till after the end of pregnancy.* The child, born at full term, in the seventh week showed papules, and later had other manifestations of syphilis. Vayda considers himself justified in excluding here the possibility of *extra-uterine infection* of the child. There was also absolutely no ground for thinking of a *reinfection* during the pregnancy. The presence of indolent buboes in the mother is a sign of already present constitutional symptom, for these are looked upon as the connecting link between the induration and the syphilides. The syphilis of the child was not *acquired*, because there was no primary affection to be found and no lymphatic gland swellings worth mentioning, while these are never absent in acquired syphilis of the new-born. The presence of coryza also spoke for hereditary syphilis as opposed to acquired. Therefore, on the basis of observed facts and theoretical reasoning, which tends to show the possibility of the transmission of formed and amorphous material from mother to fetus, Vayda declares that syphilis acquired by the mother during pregnancy may be transmitted to the child in utero, and that all direct and indirect proofs brought up against this law are unable to stand sharp criticism.

Dr. Wolff (Strassburg) divides his observations on hereditary syphilis in three categories. In twelve cases the mother was healthy, but the father syphilitic. The children remained *for a long time after birth* perfectly healthy, and the mothers were not infected. In the cases in which the mothers were syphilitic the children were also. Then comes a third group of twenty-eight cases, in which infection of the mother took place after conception. From these cases Wolff concludes that "women who are infected after conception are more likely to have living *but syphilitic* children than those who were already infected before conception." (Without criticising this, we may simply express our doubt of it.) Wolff claims, further, "transmission of syphilis from father to child can *only* take place through infection of the mother" (?). He has never seen a case which did not thoroughly support this statement.

8. Weiss: Salicylate of Soda in Febrile Diseases of Children (*Pest. med.-chir. Presse*, 10 *and* 11).—DR. J. WEISS concludes as follows: 1. Sodium salicylate in typhous diseases of children is a better antipyretic than quinine, cold baths, cold packs, and mineral acids. Its action is most decided when large doses are given at short intervals. He has seen no bad consequences from it.

2. In diphtheria it has no favorable influence.

3. In acute inflammations of the joints it rapidly diminishes the fever and the pain.

4. In intermittent fever it only works when given immediately before the attack and when the remedy is stopped the fever returns.

9. Turin (Basle): **Temperature in Tubercular Meningitis in Children** (*Jahrbch. f. Kindhlkde*, XVI. B., 1 and 2 H.).—JULES TURIN gives an exhaustive analysis of cases of the above, which came under his observation in private practice and in the hospital at Basle. The disease has been studied and described more thoroughly in all other points than in regard to temperature. The author's sketch of the history and literature of this point shows various and conflicting opinions, and he felt that the large material at his disposal offered an opportunity which should not be neglected. Leaving out several cases in which the observations were not sufficiently accurate, he reports forty-one cases in all. Of these, twenty-four were cases of meningitis tuberculosa, without preceding febrile affection; five were meningitis tuberculosa, after other primary febrile diseases; four were acute miliary tuberculosis, with complication of meningitis; seven were meningitis basilaris non-tuberculosa; and one was tubercle in cerebrum, with terminal meningitis tuberculosa. Three of the cases of meningitis basilaris, occurring in tubercular subjects, are included with the five of the second class, and called class B, while the twenty-four first cases form class A. The diagnosis was in each case verified by post-mortem examination. The age of classes A and B together were one to three years, four cases; three to five years, seven cases; five to ten years, fourteen cases; ten to fifteen years, six cases; fifteen to twenty years, one case. In his description, the author holds to the three stages described by Robert Whytt, and adds to them a prodromal stadium. Each stage is characterized by special symptoms, though of course the division is to a certain extent arbitrary. Passing over the detailed description of each of these stages, we draw the following conclusions:

1. Meningitis tuberculosa is always accompanied by a rise of temperature, either in the prodromal stage or in one or two stages, rarely during the whole disease. (The latter was observed seven times.)

2. In only few cases the disease begins with a sudden rise of temperature, like any acute affection.

3. The thermometric results are extremely varying, so that there can be no description of a typical curve.

4. In genuine, uncomplicated cases of meningitis tuberculosa, the temperature rarely goes above 102¼° F. It varies between 100¼° and 102¼°, and sometimes sinks some degrees below normal.

5. The most frequent type is the remitting, with the usual daily fluctuations. These fluctuations are normal, or stronger than normal. Their character is often decidedly irregular, with a more or less sudden rising or sinking of the temperature in any stage and at different times of day.

6. When the meningitis tuberculosa is the termination of an already existing febrile affection, as coxitis or some joint affection, the temperature averages higher than in the other cases; otherwise, the course is the same.

7. In cases of acute miliary tuberculosis, there is a greater rise of temperature, and the variations are more marked.

Though this inconstancy of temperature is more like that of chronic diseases, the duration of meningitis tuberculosa is rarely over three weeks. The variations in pulse frequency, as is well known, are greater than in the temperature, but they seem to hold a decided relation to each other. The author goes into a long argument as to the cause of the rise of pulse and temperature. Is the fever caused by the tuberculosis or by the meningitis? On the one hand, tuberculosis in any part of the body causes fever; on the other hand, any inflammation of the meninges has the same effect. In the two first forms of the affection, the author concludes that the nature of the inflammation has less to do with the course of the temperature than the fact of the involvement, in any way, of the pia. In the complicated cases, it is more difficult still to explain the course of the temperature, so many agents influencing it. Age, constitution, and condition seem to be important factors. Perhaps the most marked characteristics of the temperature are the *sudden* irregularities and the *premortal* changes. The first were mentioned under 5 in our résumé. In regard to the premortal temperature, out of thirty-eight cases seven ended with a sinking and eleven with a rise. The others remained as before. A rise of temperature usually, when it occurs, takes place in the last twelve, more rarely the last twenty-four hours. The course of the temperature previously gives no premises for judging of the final result. The amount of rise is from 3° to 5°, once 8°. Lately this premortal rise of temperature has been observed in other diseases. Careful study of all these cases seems to show that this rise depends probably on a disturbance of cerebral activity, and not on the amount or kind of pathological process present.

The *fall* of temperature is rarer than the rise (seven out of thirty-eight cases), but it may reach very low figures (in one case, 90¼° F.). The author names these cases hypapyretic in contradistinction to the hyperpyretic. This ending may follow a subnormal, normal, or febrile temperature. Some cases of cerebro-spinal meningitis have shown temperatures of 86° F., 81° F., and even 75° F. By dividing the pons Varolii in animals, we obtain a like result. In meningitis tuberculosa, the suddenness of the sinking shows that it cannot depend on general manition, and it is not a collapse. There is some disturbance of the cerebral centre, which regulates the temperature. There is probably not so much an irritation as a paralysis of the excito-caloric centre. But why is in one case the *moderating* and in another the excito-caloric centrum paralyzed? This we cannot answer, but everything goes to show that these centres lie very close together, and that as one or the other is affected, we have either a sudden rise or a sudden fall of the temperature.

The author concludes by saying that, irregular as the temperature seems to be in this disease, it is not more so than the other symptoms; and while it may be of little worth in differential diagnosis, yet its study, in connection with the other symptoms, may lead us to more accurate results.

10. Dr. Ernst Kormann (Dresden): **Ascites or Peritonitis Serosa?** (*Jahrbch. f. Kindhlkde.*, XVI. B., 2 H.)—H. Rehn (in Gerhardt's *Handb. der Kinderkrankh.*) has lately pointed out the possibility of a differential diagnosis between the so-called essential ascites and peritonitis serosa, and shown that as yet we have no proof that a disturbance of resorption alone can cause hydrops peritonei, and there is no case on record where this was the case. He is inclined to class all these casses of ascites in which the cause is dark under the head of chronic peritonitis, especially the chronic form of rheumatic peritonitis, described by Galvagni as peritonitis serosa. "I cannot demonstrate that the case I report belonged to this latter category, inasmuch as convalescence prevented an autopsy, but the history of the case would seem to decidedly give that view, and in so far support Rehn."

Emilie B., six years old, was seen first, June 5th, 1879, and then had a large abdomen. She was anemic and poorly nourished, but these symptoms were new, and she had been healthy up to a short time previous. Three days before, she sickened, either from imprudent diet or from cold caught by sitting on damp grass. She suffered from vomiting, loss of appetite, pain, and distention of lower abdomen. The pain was slight even on pressure, but the distention increased, and even at the first examination a good deal of fluid could be detected. The liver was high, but of normal size. All the other organs were normal in size and in function, especially heart and lungs. The child's general condition was pretty good, and she ran about on the street. In the next twelve days, the fluid increased so rapidly as to cause slight difficulty in respiration. On June 18th, puncture was performed, and six quarts of yellowish-green, sticky fluid were removed. This fluid was so full of albumen as to become almost entirely solid on boiling. On the next day, after careful examination, the whole abdomen was painted with iodine. The liver was perfectly normal. On the fourth day, the child got up, the painting with iodine was continued, and she took internally the syrup ferri iodidi. At first there was a little fluid in the abdomen, but this entirely disappeared, and August 11th she was discharged cured. She was often seen again, and had no sign of a relapse. In 1880, however, she was treated for different scrofulous affections, and especially for a keratitis. She was last seen in September, 1880, and showed then no sign of her former trouble.

How explain the origin of the fluid and the rapid cure? Up to the moment when the puncture was made, the author had regarded the case as one of simple disturbance of resorption, ascites. The color of the fluid first made him think of Rehn's claim, and the examination of it seemed to substantiate this. With *such a large percentage of albumen*, the diagnosis of a transudation could no longer be held. It was an exudation. This being admitted, we see that the case was one of peritonitis serosa. In many points it differed from Galvagni's chronic rheumatic peritonitis, which is described as developing insiduously with symptoms of disturbance of digestion, pain in the epigastrium, etc., and running a slow course. In this case the symptoms were all present, but the course was not so chronic. G. gives seventy-five days as prodromal stadium, fifty-five for the continuance of the exudation, and fifty-two for resorption: so this case made no approach to his reckoning. The course of it was, perhaps, to a certain extent, changed by the punction. We must, however, say that there are cases of serous peritonitis not covered by G.'s description, though etiologically closely allied to it. In regard to treatment, G. is opposed to puncture, but Rehn and Kormann are both strongly in favor of it.

11. Kormann: Case of Gangrenous Pharyngitis Resulting in Cure (*Jahrbch. f. Kindhlkde.*, XVI. B., 2 H.).—Patient was fifteen years old, but undeveloped and still a child. When first seen, she had been suffering three days from sore throat, which began with difficulty in swallowing and an unpleasant smell from the mouth. It was hard for the child to open the mouth. There was redness of the soft palate and right tonsil, but no diphtheritic deposit. Tongue thickly coated and dark brown; submaxillary glands swollen and tender; temperature, 39° C.; absolute aphagia, great thirst, and no appetite; speech so indistinct that a slate had to be used to write on. Ordered gargles and injections of solution potassium chlorate, and inhalations of lime-water; internally, when possible, liquor ferri sesquichlor. Neck wrapped in hot, wet flannel. The next day, with strong light, dark masses were discovered in the right arch of the palate, the right tonsil, and the right side of the pharyngeal wall. These were beginning to loosen, and the membrane around them was red, swollen, and discolored. These masses, when loosened and spit out, were brown and tough, and gave out the same terrible smell as came from the mouth. In addition to preceding days' treatment, quinine was given in large doses and gargles of potassium permanganate. On the third day of observation the status was the same, except that the anemia had increased. The fever continued. The worst point was on the evening of the fourth day (7th), when the child sank into collapse. Ether injections were given, and as soon as the pulse came up, musk and sherry wine were ordered, and continued through the night. The improvement was marked, and the next morning the patient was for the first time free from fever. The gangrenous masses were loosening and coming away. The stench was terrible. Convalesence was from this point rapid. The wounds healed and cicatrized, the discolored portions became smaller, and every day the smell decreased, and on the twelfth day (15th) the child was declared out of danger. Under good nourishment, the strength returned. The patient is now well, fully developed, and the only sign remaining of her terrible sickness is the scarring.

Was this a case of diphtheritic gangrene of the pharynx or a gangrenous pharyngitis? This can be answered only by exclusion. The points against diphtheria were—there was none of it in the neighborhood, there had been no chance of infection, there was no membrane on the affected spots, and there was no paralysis. On the other hand, the gangrenous masses could be seen imbedded in the tissues. The case was one of circumscribed, primary (?) gangrene of the pharynx, which is so very rare, and which more rarely ends in cure. K. discusses the etiology of the case, and draws a parallel between it and the ulcus ventriculi rotundum, which occurs in chlorotic girls through thrombus of an arteriole. If that was the case here, perhaps the case could hardly be called *primary*.

12. Report of the Proceedings of the Section of Pediatrics at the Fifty-third Meeting of the Scientific Society at Danzig (*Jahrbch. f. Kindhlkde.*, XVI. B., 2 H.).—*Sept. 20th.*—1. Essay by DR. WAGNER, on the prices of different articles of nourishment: reported in this number.

2. PROF. DR. BERTHOLD reported a case of violent paroxysms of cough, caused by deep caries of a molar tooth, in his son, seven years old. The affection was repeated after two weeks. As soon as the teeth were removed the attack each time ceased.

3. DR. WARSCHAUER reported his observations on variola in Krakau. He found that the Jewish race showed three per cent less cases than the rest of the population, and he attributed this partly to their greater cleanliness, but mostly to their strictness in carrying out the rules of vaccination. The only point of interest in his therapeutics and complications was the recommendation of the application of compresses of vinegar-water to prevent pitting. Prof. Jacubowski argued that it was only the cold which did the good.

4. GEH.-RATH METTENHEIMER made a strong plea for the effectiveness of the East-sea baths and the East-sea air in aiding the development of children, especially during dentition. He praised the union of sea and forest air as found there. He had established a station at Gr.-Müritz, on the East sea, and had been delighted with his results. Much discussion followed, all favorable to this region as a children's health resort.

Sept. 22d.—1. DR. STEFFEN described the causes, the differential diagnosis, and the relations of acute myocarditis and endocarditis. He stated that in childhood the only sign of the former, very rare, disease was enlargement of the whole heart, especially of the left ventricle. This rapid increase in volume is in the child easy to ascertain by percussion. As more frequently in the course of severe infectious diseases, so more rarely had he seen a *primary* rapidly increasing dilatation of the whole heart, especially of the left ventricle (apex displaced outward and downward), occurring under the symptoms of stormily increased heart's action and rapidly entering cardiac insufficiency. Sometimes such dilatation gradually returned to normal condition. This, however, only takes place when the valves remain unaffected, though even when they are, there is still a possibility of restitutio in integrum by a bagging out of the valves and close of the insufficiency. When this does not take place, the compensatory dilatation and hypertrophy occur after the primary enlargement of the heart has returned to normal. Dr. Steffen had very rarely seen the cerebral initial symptoms of myocarditis as described in the books. Speaking then of chronic myocarditis, he described two forms—first, the syphilitic form, of which only four cases are on record, especially attacking the right heart. Two of these cases were in stillborn children, while the other two also showed their intrauterine origin by the especial involvement of the right side of the heart. Second, chronic myocarditis, with laminated, tough, interstitial induration, especially in the left ventricle. Dr. Steffen then related an interesting case, after which, in response to questions, he stated that he believed that, in the acute cases, the process depended on infiltration rather than exudation, otherwise we should not have the reabsorption. He had never found any marked changes in the urine, had never found albumen nor observed signs of transudation. He had seen very high temperature, 40° and over.

2. PROF. DR. WARSCHAUER spoke on scarlatina and its complications. The article contains nothing new. His remark that he had no experience in the use of pilocarpine in complicating nephritis started a discussion, in which DR. SEEMANN stated that careful experiment had convinced him that the drug caused a passive hyperemia of all organs, and that it was always to be exhibited with great caution. Besides the collapse sometimes caused by it, he had observed that in nephritis parenchymat. and hydrops, when the amount of urine had been already increased under pilocarpine, uremia occurred. PROF. EDLEFSEN warned against its use when there was any cardiac weakness. This seemed to be the general opinion of those present.

3. DR. STEFFEN spoke on spinal paralysis. After speaking briefly of the recognized forms of spinal paralysis as arranged by Seeligmüller, he showed that there were cases which, in their arrangement of symptoms, fitted to none of these groups, but seemed to partake of the character of two or three of them. The anatomical substratum in these cases must apparently have spread so that it would correspond to none of the described pathological conditions. Unfortunately, he had no results from autopsies to support his statement. The cases related by him are interesting and seem to support his point, but we have not space for them here.

Sept. 23d.—1. DR. SCHEELE spoke on quinine inhalations in pertussis. He treated twenty-six cases, in age from six to under one year, in families where his directions could be carefully carried out. The inhalations were sometimes taken willingly, sometimes given by force, three times a day, the solution being of one-half per cent strength. He obtained the following results:

(1) The intensity of the paroxysms is markedly decreased within a week.

(2) The number of paroxysms is decreased.

(3) The duration of the convulsive stage and of the disease itself is not much decreased.

Scheele claims that the advantages of the method lie—

(1) In the avoidance of atelectases and their results.

(2) In the slight risk, as compared with inhalations of carbolic acid or the internal use of atropia, etc.

(3) In the intense action on the pharynx and larynx, the presumptive seat of the infectious orgasm, as compared with the internal use of quinine.

Much discussion followed, the members advocating very various methods of treatment, that of Dr. Seemann receiving, perhaps, the most notice. He covers the bed of the patient with a tent soaked in a five per cent carbolic acid solution. His results had been very good, and he had never seen carbolismus caused by it.

2. PROF. EDLEFSEN read an essay on "The Use of Pepsin in the Nourishment of Children." He had seen excellent results from its use in those cases of dyspepsia in children (brought up on the bottle), in which there seemed to be a poor digestion of caseine, and in which the feces show large, whitish lumps of caseine in a yellowish or greenish ground substance. The drug used was the pepsin from Dr. Witte, in Rostock. He gave it in powder, in a teaspoonful of warm water, three times a day, right before feeding. In the discussion, Witte's pepsin was highly praised, both by the physicians present and by Paulcke, a pharmacist in Leipzig, who says it is decidedly the best in the market. Lactine and other preparations were discussed, and Paulcke asked the profession to try a new milk-salt which he had prepared, and which he claimed possessed all the virtues of lactine. In 100 parts, there are 16 of chloride of sodium, 22 of chlor. potass., 8 of phosph. calc., 8 of sulph. potass., 2 of bicarb. potass., 0.05 grm. boracic acid. To this is added milk sugar.

13. Vaccination.—In the present agitation over variola in this city and elsewhere, it may be of interest to collect a few points on the subject from the foreign journals. Dr. L. Oser (*Vierteljahresschrift f. Dermat. u. Syph.*, 1 H.) urges the necessity of a new law on the subject in Austria. He makes a résumé of the works published since 1873 on the subject, and replies to the opponents of vaccination. He admits that the statistics are full of failures, but says this does not speak against the worth of the method. It is also true that the variations of the small-pox epidemics depend on causes unknown to us, and are influenced by sanitary and social movements. But it is unjust to claim from this that vaccination has had nothing to do with the good results. On the other hand, there remain the cardinal facts that vaccinated persons have resisted inoculation with variola, that variola runs a milder course in the vaccinated, and that where statistics have been carefully and thoroughly compiled they have always shown favorably for vaccination. We must always remember that the protecting power of vaccination cannot be greater than that of an attack of variola, and we know that this is not absolute, and we do not know how long it lasts. He says: "There is only one way to break the anti-vaccination agitation, and that is for the State to make strict laws, and then to provide for animal virus, procured with such caution that all the dangers of vaccination shall be done away with. Dr. Padieu (*Gaz. des hôpit.*, 52), on March 21st, 1879, vaccinated with cow's virus an eight-month child, which had eczema of the face and head. On the sixth day there developed, not only at the point of vaccination, but also on the head, an eruption of confluent vaccinia pustules, about two hundred in number, which ran the course of real variola pustules. The child had high fever, vomiting, and diarrhea. The mother of the child often held its head against her cheek, and though her skin was perfectly normal, there developed, on March 27th, a vaccine pustule on the right cheek. It became enormously large, and was followed on the succeeding days by two others, and on April 3d, by one on the lower eyelid, one on the point, and one on the base of the tongue. The mother also suffered from quite severe constitutional symptoms. On April 2d the nurse of the child also had a large vaccine pustule on the right eyelid, but the constitutional symptoms were slight. Dr. W. Stokes (*Dublin Journal of Medical Science*) relates an interesting case of vaccinia gangrenosa. In the same connection, we may mention a case of variola congenita reported by Depaul (*Progrès Méd.*, 19). A thirty-year-old. vaccinated woman was attacked with variola in the sixth or seventh week of pregnancy. Six weeks later, the heart-sounds of the fetus were clearly heard. After six weeks more (eighteen or nineteen weeks pregnant), she aborted. The fetus was of the male sex, weighed eight hundred and twenty grammes, was macerated, and showed on many points of its surface pustules (variola congenita). It is certain that the fetus still lived in the twelfth to thirteenth week of pregnancy. The placenta was in an advanced state of fatty degeneration. Dr. Blat and Dr. Devilliers reported cases of variola in the fetus without disease of the mother.

14. Pollak: Case of Spastic Spinal Paralysis (*Berlin. Klin. W.*, 29, 1880).—Dr. Ladislaus Pollak publishes the following case of the above: Patient was a boy twelve years old. Family history excellent. He was born with a paralysis of the extremities and the body, and this continued progressive. He always remained in a horizontal position, and though he developed well, there was no change in this immobility. When two years old, he began to have twitchings and spasmodic contractions of the legs, and these increased as he grew older. The muscles, even those unused, were not atrophied. There was no paralysis of the sphincters. The spasmodic attacks began with fibrillous muscular twitchings in the lower extremities, spread gradually to the upper, and then increased to tetanic adduction and extension, with intense bending of the fingers and toes. The sensibility remained intact, the muscles were finely developed, the electro-cutaneous and muscular sensibility and electro-muscular contractility were preserved. Mechanical irritation of the nerves caused a wrenching of the extremities and stiffening of the body (spinal epilepsy). The violent muscular action was followed by sweating and great thirst. Patient died from a double pneumonia, but unfortunately there was no autopsy.

15. Winternitz: Cheyne-Stokes Respiration (*Med. Chirurgische Rundschau*, 1880).—Dr. W. Winternitz reports a case of this phenomenon occurring in a child under unusual circumstances. Patient was a tender, pale boy, with hypertrophied tonsils. He exhibited this form of respiration on going to sleep, the phenomenon being very marked, intermissions extending to twelve seconds. If he was waked, it disappeared, to appear again as soon as he slept. The condition lasted twelve hours, and did not occur again, a slight gastro-intestinal catarrh disappearing at the same time. Winternitz is of opinion that in the extremely anemic child, the plethora of the abdominal vessels caused an intense anemia of the medulla oblongata, and thus this phenomenon.

16. Weiss (Vienna): **Massage in Laryngeal Croup and Catarrh** (*Archiv der Kinderheilkunde*).—Dr. Bela Weiss has used this with good effect in one case of each variety of laryngitis. In a six-year-old boy, with well-marked larynx croup and intense laryngo-stenotic symptoms, the following was the procedure: The operator, after bending back the head of the child, grasped the neck so that the ends of the fingers rested on the vertebræ. Then, with the thumbs well oiled, the region of the venæ jugulares communes was rubbed or stroked from the edge of the jaw *downward* to the clavicle. The sides of the larynx were rubbed, always *downward*, and "massirt" with the fingers of both hands. After twelve minutes of massage, expectoration of false membrane and improvement of the stenosis. After two hours, the massage separated, with still more improvement. On the same day, repeated three times, with more expectoration of membrane, and so on to *cure*, which was complete on the fifth day.

17. Pertussis.—Under this heading, we may group articles by several authors, as gathered from our exchanges. Dr. R. Meyer-Hüni (*Zeitschrift f. Klin. Med.*) as early as 1873 recommended and followed with good results the local treatment, on account of the superficial inflammation, which he claimed extended out of the cavum pharyngo-nasale to the throat and entrance of the larynx. Rehn's laryngoscopic examinations claimed that the vocal cords were intact, as well as the upper and posterior region of the larynx, but that there was marked inflammation of the trachea and of the larynx below the cords. Lately Dr. Meyer-Hüni has had opportunities of making very exact laryngoscopic examinations in several cases, and during all stages of the disease. He was again able to follow the downward steps of the coryza through the throat to the larynx. Even after eight to fourteen days, he could see the congestion of the membrane of the posterior nares, the irritation of the roots of the tongue and of the throat. The under surface of the epiglottis and the upper part of the larynx were catarrhal, the anterior part slightly so, the cords normal. The trachea and lower larynx were also catarrhal. This catarrhal irritation was everywhere superficial, but accompanied with great hyperesthesia and reflex irritability. After three to five weeks' duration, these appearances disappear. The involvement of the lower larynx and the trachea, as well as the extension of the disease into the bronchia, is much more marked in children than in adults. There is a direct connection between the single symptoms of pertussis and the above-described local changes. The choking and tendency to vomit seem to depend on the disease of the palate and throat. The region between the epiglottis and the vocal cords does not seem to give rise to an irritation to cough, but there is an increase of the reflex irritability, and the increased secretion seems to cause the cough. The principal "cough region" of the larynx is the posterior wall as high as the cords, and from here come most of the cough paroxysms. He does not agree with those who consider the disease a purely local, infectious affection like gonorrhea, but would rather class it with the acute exanthematica. He recommends nothing particularly new in the way of treatment, but is in favor of mild astringents in the first stages.

Prof. M. J. Rossbach (*Berlin Klin. W.*) has found that the larynx, the pharynx, and the two upper thirds of the trachea remain normal through all the stages of pertussis. Examination a few moments before the paroxysm showed bubbles of mucus coming up from the lower third of the trachea. In these, he found the same fungus elements as in ordinary catarrh. This sputum, when introduced into the throats of rabbits. caused no pertussis. He considers pertussis only a catarrh of the larger bronchia, caused by some specific virus, and cough a reflex neurosis, in consequence of the increased irritability (through the virus) of the spinal "centres of cough." His treatment is quinine and the use of electricity through the cord.

Dr. Andrew Buchanan (*Glasgow Med. Journ.*) gives the following causes of death in pertussis:

1. Asphyxia in consequence of long duration of expiratory cramp.
2. Long-continued high fever without local inflammatory affection.
3. Exhaustion.
4. Rupture of blood-vessels in lungs or brain.
5. Complications.

He considers the irregularity of the pulse as one of the most important symptoms. The more irregular, the worse the case. He explains this by the forcing of blood into the heart during the paroxysms. The heart sounds, at the same time, are normal.

18. Guermonprez: Nervous Disturbances from Worms (*Gaz. des hôp.* 34, 1880).—Dr. Guermonprez observed the following symptoms in a boy eleven years old: Decrease of the intelligence, peculiarities of behavior, tendency to leave his home, to tear his clothes, etc., loss of memory, sleeplessness. At length the child became so restless that he continually made uncoördinated movements, and deafness, disturbances of sight, aphasia, and hallucinations set in. After varied treatment, he was given semina contr. 4.0 grm. pro die. Almost immediately 37 ascar. lumbricoid. were voided, and the nervous symptoms at once improved. In the next twelve days eighty-four more worms were passed, and in two months the child was perfectly well, and has remained so now for over two years.

19. Pribram: Coto Preparations in Infantile Diarrhea (*Prager Med. W.*, 1880).—Prof. Pribram has treated over fifty cases with cotoïn with most encouraging results. His continued experiments showed that the alkaloids cotoïn and paracotoïn do not possess any of the unpleasant qualities of the mother drug or have any of its bad concomitant effects. Whenever the treatment by cotoïn was not in a few days successful it was given up, and it was noticeable that in these cases the various other methods of treatment also failed. The favorable results were expressed in an improvement in the mortality rate, and especially in the rapid appearance of normal stools and the shortening of the duration of treatment. As a rule, the stoppage of the diarrhea was decisive. Pribram explains the method of action of the drug as a strong antiseptic (antimycotic) means, because, even in small doses, it does away with or decreases the pancreatic putrefaction and stops the souring and curding of the milk. Peptic and diastatic digestion is not influenced by it. Cotoïn is very slightly soluble in hydrochloric acid, easily so in alkalies. Probably, therefore, even small doses are not absorbed in the stomach, but reach the intestines unchanged. Pribram therefore gives it in powder—to the youngest suckling 0.02 pro dosi, and an increased dose, according to the age of the patient.

20. Jochheim: Diphtheritis and Ozone (*Monograph*).—DR. PH. JOCHHEIM, after discussing the causation and pathology of diphtheritis, goes on to describe his treatment of it by ozone, and comes to the conclusion that not only in this but in all infectious diseases, *ozone is the most important remedy we have.* The recognized action of eucalyptus globulus and its preparations, he claims, is only due to the ozone contained. The apparatus which he uses is as follows: A three-necked bottle holding ℥ viii.: in the middle neck, a glass funnel with a stopcock; in the other necks, glass tubes. The funnel extends three centimetres in, the tubes one centimetre. One tube is connected with rubber insufflation or atomizer bulbs, the other by a rubber tube with an inhaling mouth-piece. About 30.0 potassium hypermanganate are put in the bottle, and a little sulphuric acid in the funnel. By means of the stockcock, this is allowed to slowly drop into the bottle while the bulbs are being used. Thus arranged, the apparatus will be in order for two weeks. In cases of diphtheria, Dr. Jochheim uses the inhalations for three to five minutes every half-hour. Besides this, he paints the throat every three hours with potassium hypermanganate 0.6 to 30.0, and then washes it out with dilute SO_3 (1:500), so that ozone is thus developed directly in the throat. He also gives every two hours potassium hypermanganate 0.03, and quinia muriate 0.12, internally. The same method is used for disinfection of the sick-room—50.0 potassium hypermanganate in 300.0 water, with 50.0 SO_3 gradually added and slowly heated by a spirit lamp. This serves as an excellent prophylacticum for the attendants.

Prof. Liebreich (*W. Med. Blätter*), on the other hand, in an interesting essay illustrates the confusion existing in professional heads on the subject of ozone and air rich in ozone. He says that not only ozone, but the most various oxidizing substances mingled with atmospheric air, liberate iodine, and so give an iodine reaction. In his opinion there is no such thing as a therapeutic action of ozone, because at the slightest contact with organic material it is destroyed, forming oxygen. If it really should come into the circulation, it would develop bubbles of oxygen, which would hinder respiration. It is therefore impossible to suppose any therapeutic action of ozone, even if it could be absorbed.

21. Demme: Scarlatina-Diphtheritis and Diphtheria (17 *Jahresber. des Kinderspitales zu Bern*).—PROF. R. DEMME discusses the much-vexed question of the identity of scarlatina-diphtheritis and primary, idiopathic diphtheritis. His stand-point is this: He distinguishes one group of catarrhal scarlatina-diphtheritis, in which there occur a livid redness of the membrane of the soft palate, uvula, and tonsils, a punctiform swelling of these parts, and a sero-purulent infiltration between the epithelial layers in the form of a spotted cloudiness. This infiltration contains a large number of round micrococci, but few rod-shaped ferment elements. This form heals in four to eight days. The second group contains the cases in which these changes lead to extensive tissue-necrosis without any fibrinous deposit on or in the membrane. It is combined with great swelling of the lymph glands, and runs the course of severe typhoid or septicemic diseases. The invasion of micrococci in this form is in masses, extensive and especially deep-reaching, *but without extension of the process to the larynx or the nasal membrane.* Finally, there is a third group which includes only a small number of cases and which is completely identical in its clinical and anatomical appearances with idiopathic primary diphtheritis. In it the process extends to the nose, larynx, etc., and is followed by paralyses. Only this last group deserves the name "scarlatina-diphtheritis," while the others should be called catarrhal scarlatinous inflammation of palate and tonsils and scarlatinous throat necrosis.

22. Epstein: The Epithelial Pearls in the Mouths of the New-Born (*Prager Vierteljahresschrift*).—DR. A. EPSTEIN understands by this term the palate-tubercles occurring in or on the palate raphe of new-born children, and which disappear at the end of the first week, leaving only a shimmering point, which also entirely disappears by the end of the second month. Similar tubercles are found on the free alveolar edge of the upper jaw. All authors who have studied these tubercles have considered them as glandular bodies and only differed as to the kind of glands they arose from. Closer examination has caused Epstein to give up this opinion. Their location is in a region poorly supplied with mucus glands, and it is not clear why the stoppage of the ducts and retention of the secretion should take place only during fetal development. The opinion that there is an abnormal formation of sebaccous glands is only hypothetical and supported by no proof. It would seem right to ascribe the occurrence of these little bodies to some fetal process, inasmuch as they are always much more abundant in premature children. E. found in 7–8 month children a sharply defined gap, situated across the median line and pointed toward each side—that is, a gap situated in the direction of the raphe, lined with flat epithelium, and in which the older cells took on more and more of an epidermal character, became rounded off by piling up in the space of the crevice and pressed toward the surface in the form of tubercles. The process reminded one of the process of formation of epithelium pearls in epithelioma, and therefore E. gave them the same name. He believes that he has proved upon embryos that these "pearls" take their origin from an irregular and partially interrupted union of the plates of the palate, between which little spaces remain, which develop into laminated epithelial tubercles by continued cell proliferation of the walls. A similar process goes on in the grooves between the teeth on the alveolar edges of the jaw, the membrane of the mouth sinking into these spaces.

Bohn has declared that the median ulcers of the membrane which arise in new-born children from these tubercles are identical with Bednar's aphthæ, but on the corners of the palate, the location of these so-called aphthæ, the tubercles never occur. These palate-corners express the projecting hamulus pterygoideus and disease of these points (which on opening the mouth become anemic by tension of the lig. pterygo-mandibulare) depends, as Moldenhauer has shown, on purely mechanical causes, and Epstein, later, pointed out the infectious disease of the same points caused by the accidental lodgment there of organisms (septic ulceration).

Epstein found epithelial-pearls of this same kind and origin on the glans, in connection with epithelial adhesion between it and the prepuce. He supposes the facial tubercles (milien) of new-born children are similar bodies; he saw them also on the inner surface of the labia minora, on the free edge of the posterior arch of the palate, on the anterior edge of the frenum linguæ, and in the cervix uteri of new-born children.

NOTE.—We have received the following circular, and cheerfully comply with the request that it be given publicity. It is especially desired that American views upon Pediatrics be fully represented.

A report of the proceedings of this Section will appear in our October number.

INTERNATIONAL MEDICAL CONGRESS.

LONDON, AUGUST, 1881.

SECTION VII.—DISEASES OF CHILDREN.

DR. WEST, *President.*

DR. GEE,
TIMOTHY HOLMES, Esq., } *Vice-Presidents.*

London, February 20th, 1881.

SIR:—We beg to inform you that the following subjects have now been definitely selected for discussion in this section:

MEDICAL.

1. The real position of the so-called Rubeola, Rötheln or German Measles, and its relation to Scarlatina and Measles.
2. Syphilis as a cause of Rickets.
3. On the different kinds of Spinal Paralysis and Myelitis in children.
4. *Diphtheria:* (i.) The conditions governing the occurrence of Albuminuria and of Paralysis as attendant on this disease, or as its sequelæ. (ii.) The nature and mode of propagation of its contagion.
5. The relationship of Chorea to Rheumatism, with especial reference to the nature of the heart murmur which so frequently attends Chorea.
6. The forms of Acute Tuberculosis other than ordinary Tubercular Meningitis.

SURGICAL.

1. The surgical treatment of Croup and Diphtheria.
2. The surgical aspect of Tapping for Empyema.
3. The pathology and treatment of Genu Valgum.
4. The treatment of Diseases of the Joints, especially with a view to the prevention of deformity.
5. Treatment of Spinal Curvature, with special reference to Sayre's method.
6. The nature of the so-called Surgical Scarlet Fever.

We shall be very pleased if you will forward us a paper on any of these subjects; or notify your intention to take part in the discussions.

At the same time we would remind you that the selection of the special subjects above given is in no way intended to shut out other communications connected with this branch of medicine. Will you have the goodness to make known to any of your friends who are interested in children's diseases this programme, further copies of which shall, on application, be sent to you for the purpose.

We remain yours faithfully,
HORATIO DONKIN,
ROBERT WM. PARKER, } *Secretaries.*

Extracts from the Rules.—Notices of papers, together with abstracts of the papers, to be read in any one of the sections must be sent to the Secretaries of that section before April 30th, 1881. . . . Any member wishing to bring forward a subject not already on the programme must give notice of his intention to the Secretary-General at least twenty-one days before the opening of the Congress. . . . No speaker is allowed more than ten minutes, with the exception of readers of papers and those who introduce debates, who may occupy fifteen.

⁂ *Communications regarding the Medical Subjects in this Section to be addressed to* DR. DONKIN, 60. *Upper Berkely St., London, W.*

Those regarding the Surgical Subjects to R. W. PARKER, Esq., 8, *Old Cavendish Street, London, W.*

THE AMERICAN

JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

VOL. XIV.] JULY, 1881. [No. 3.

ORIGINAL COMMUNICATIONS.

SPONTANEOUS VERSION AND EVOLUTION OF THE FETUS IN SHOULDER AND ARM PRESENTATIONS,

AND THE MANAGEMENT OF SUCH CASES WITHOUT THE SACRIFICE OF THE CHILD.

BY

ISAAC E. TAYLOR, M.D.,

New York.

Before proceeding to the subject proper of this paper, I will premise my remarks by the recital of two cases of spontaneous version of the fetus in utero some hours after the evacuation of the liquor amnii.

The two principal objects I have in view are—first, to consider the retractive power of the uterus, and the recession of the child in consequence of that act, as aiding or producing the partial or complete version or evolution of the fetus, whether in the uterus or low in the excavation of the pelvis, and the natural delivery of the child; secondly, to suggest a method of treatment which will avoid the mutilation of the infant, especially in those cases where the shoulder, with the arm protruding, is deep in the pelvic cavity, or external to it, and where spontaneous evolution could not possibly take place.

CASE I.—*Universally contracted pelvis—Premature labor instituted at eight months—Cephalic presentation—Complete spontaneous version of the child—Loss of waters four hours—Natural delivery.*

On the 15th of February, 1880, I was requested to visit Mrs. S., who was eight months pregnant; third pregnancy; aged thirty-five. Her first confinement terminated unfavorably, for the child had to be sacrificed after version was performed. Convulsions existed for a long time, but she finally recovered. The second pregnancy, premature labor had been produced at six and three-quarters months; child lived only a few hours. Acquainted with the defect of the pelvis as a consultant, premature labor was induced at 12 o'clock; at 12.30 P.M. labor had fairly commenced, and at 5 P.M. the os uteri was dilated fully three-fourths of its diameter; membranes intact, and the bag of water large and full; membranes ruptured; a considerable discharge of water followed; head presenting, though previously it was lying on the left iliac fossa; labor progressed naturally till 8 P.M. without any advance of the head into the entrance of the pelvis. From the extreme desire of the parents to have a living child, I decided to aid the labor by the forceps. My friend, Dr. T. H. Burchard, joined me, and gave the anesthetic. Forceps easily applied, and gentle traction made during a pain to have the head fixed in the superior strait, and then let nature accomplish the delivery, after the removal of the forceps. Believing that this object had been secured, they were removed. No permanent advance had been made for twenty minutes; the forceps were then reapplied. After their application, and before any traction was made, an examination recognized the fore-arm of the child alongside of the head. With this change of the labor, I decided to produce version. While anointing my hand, to introduce it into the vagina, and with the other to effect external version, I was surprised to feel no head within the reach of my finger. Dr. Burchard also recognized the fact. Immediately afterwards a foot was touched, and the breech to the right side, the head at the fundus of the uterus. The complete evolution or version of the child in utero was almost instantaneous. It was as quick and as effective as the vaulting of an acrobat. No uterine contraction occurred till the foot was seized to deliver it. In a few minutes the child was delivered living, requiring, however, prompt attention for its permanent existence. Weight of the child, eight and one-half pounds.

CASE II.—*Contraction at the superior strait of* $1\frac{3}{4}$ *in.—Cesarean section to be performed—Spontaneous version while on the operating-table—Partial cephalic presentation—Craniotomy and cranioclasm.*

This was an Italian dwarf, twenty years of age; deformity of the pelvis at the superior strait of $1\frac{3}{4}$ inches; a patient at Bellevue Hospital, March, 1861, on whom my colleagues in consultation had decided that the Cesarean section should be performed. At 8 A.M., an examination revealed the head of the child presenting.

Liquor amnii evacuated for an hour. At 10 A.M., the hour for the operation, and having been examined by several of the gentlemen present, the head was found in the same position as formerly. Previous to making the incision of the abdomen, a vaginal examination was made, when the leg of the child was found lying across the entrance of the superior strait. This was immediately seized and brought external, and the child was delivered by craniotomy and cranioclasm, instead of the Cesarean section. In a short time, three-quarters of an hour (weight of the child over ten pounds), the child was delivered. In this case, the spontaneous version in utero was accomplished in a few moments, without our knowledge, whilst we were preparing for the abdominal delivery.

It might seem almost a useless and superfluous task to enter upon or even suggest another and different explanation than those which have been rendered of those rare and important cases which we are considering, of spontaneous evolution of the fetus, where the shoulder is in the pelvic cavity, the arm protruding, or where the shoulder is external to it, and which obstetricians meet with possibly only once during their professional career of many years.

It is more than a century since Dr. Denman first called the attention of the medical profession to a "new order of events" in cases of this nature, and he gave the name of spontaneous evolution to the important change which the fetal ovoid made from being a shoulder presentation, the arm external, the shoulder either jutting into the superior strait or in the pelvic cavity, and even as low down and pressing on the perineum.

The title which Denman gave to the class of cases he witnessed, and the rationale he rendered, was called in question by Dr. Douglas, of Dublin, in 1810, though the fact had been known and acknowledged before Dr. Douglas, as well as by Guillemot and Gooch, who indorsed Douglas' views, and denied that such a method of delivery as Denman advanced ever existed, and held that it was "incorrect and at variance with the true mechanism of those cases."

At the present day there still exists a difference of opinion respecting the meaning of spontaneous evolution, and its proper or correct application to either Denman's or Douglas' rationale of what they individually saw of the cases under their charge. Dr. Douglas, in his celebrated essay on the "Real Process of Spontaneous Evolution of the Fetus," published in 1811, forty years after Denman's first recorded cases in 1772, and republished in 1844, created, after so long an interval of time, considerable sensation and discussion, and changed at that time materially the views and opinions of the medical profession respecting the views which Denman had advanced. It was generally believed then that the explication of Douglas was the correct one, and that he had demonstrated and proved that the rationale of Denman was wrong—"that it was not only wrong, but purely theoretical and hypothetical," and frankly admitted that "he could not comprehend the solution of Denman's explanation, and that if he believed in them he should despair of such an event taking place as a spontaneous evolution."

Since the publication of Douglas' essay, a more extensive experience and close study of these cases has demonstrated that Douglas, as well as others accepting his explication, did not understand as perfectly as they should have the views of Denman respecting the description of the cases he saw, and considered in comparison with the cases which Douglas and others had witnessed, and that Denman's explanation was an "impossibility."

To appreciate the great difference of opinion of the class of cases referred to by these authors, and to estimate properly the explanation which they have rendered, it may be well to present an illustration from each of them, or the rationale of their cases. I select the first case of Denman's, in 1772; the others are all similar.

"The arm of the child was presenting. The two physicians in attendance attempted to turn and extract by the feet, but the pains were so strong as to prevent the introduction of the hand into the uterus. I found the arm much swollen, and pushed through the external parts in such a manner that the shoulder nearly touched the perineum. The woman struggled violently with the pains, and during their continuance I perceived the shoulder of the child to descend. Concluding that the child was small, and would pass doubled through the pelvis, I desired one of the gentlemen to sit down and receive it. I remained, however, at the bedside till the child was expelled, and I was very much surprised to find the breech, and the inferior extremities were expelled first, and before the head, as if the case had been originally a presentation of the inferior extremities." In this case it is evident that the shoulder of the child was not external, but in the excavation of the pelvis, and resting as low or on the perineum.

In explanation of this occurrence, Denman says:

"The body does not come doubled, but the breech is the first part delivered, and the head last."

In selecting the expression or title of spontaneous evolution, to explain his meaning of the act or change of position of the child, Denman says: "To some it appeared objectionable, but I could not fix upon one better to explain my meaning. I only intended to say that the "series of events" terminating in an evolution of the child were wholly independent of the practitioner, and not that this was produced from any impulse or exertion of the body moved." It was this change of position of the child, as the shoulder was in or occupying the pelvic cavity, and arm protruding, and the child delivered by the breech first, that Douglas endeavored to controvert and to prove it was erroneous, judging from the cases which he himself had witnessed, and that an entirely different process took place. In none of the seven cases recorded by Douglas is there a complete relation of the case like Denman's, by which we have a clear understanding of them, and we have to depend solely on the rationale or explication he gives. As an instance, Case I. An arm protruded, the evolution took place, while I was deliberating on the employment of means to moderate the violent action of the uterus before I proceeded to turn.

Case 3d.—Arm protruding; in about two hours, and five hours only from the commencement of the labor, the evolution was completed.

Case 4th is the most important of all his cases, which occurred in 1814—a twin case.

The second twin.—Arm protruded. On examination, I found so much of the chest of the child engaged in the pelvis, and likewise the action of the uterus so powerful, that I made no attempt to turn. The evolution was effected in one hour.

In other words, such was the celerity of the labor with the second child, according to Douglas, that it was driven from the superior strait, through the whole depth of the pelvis without any change of position from its original one of the shoulder in the pelvis.

With this experience, Douglas says he "could not comprehend how successive repetitions of the same propelling power, in contractions of the uterus, which forced the child in this situation, should subsequently at any period produce a counter effect, causing the shoulder to retreat or recede into the uterus. The fact is, the shoulder and thorax, thus low down and impacted, instead of receding into the uterus, are at each successive pains forced still lower, until the ribs of that side corresponding with the protruding arm press on the perineum, and causes it to assume the same form as it would by the pressure of the forehead in a natural labor. At this period not only the entire arm, but the shoulder, can be perceived externally, as the clavicle is lying under the arch of the pubis. By further uterine contraction, the ribs are forced more forward, appearing at the os externum as the vertex would in a natural labor." It is clear that Douglas did not believe that recession of the child could take place under the exigencies of these kind of cases. Nor do I see how he could, and I fully coincide with him, for by "the continuous and successive repetitions of the contractions of the uterus," there was no time allotted by nature for the child to recede, either by its own movement, or the relaxation and retraction of the uterus, and more especially as the shoulder of the child was outside of the pelvic cavity, and not inside, as Denman's were. By a belief in Denman's theory, Douglas says: "We can only form a conjecture or indulge a hope, and that if he believed in it, he should despair of such an event as spontaneous evolution ever occurring."

Denman, in response to this rationale or explication of the cases which Douglas gave in his letter, October 14th, 1811, remarks:

"In your practice I presume you have met with many instances of it, but it may be supposed that one case would not be sufficient authority for forming an axiom, and determining the general question. The fact is a distinct question, the manner of the evolution another. For the former I am no longer answerable, but I certainly have remained responsible for the explanation of the manner. If there be an error in the explanation, others may also err in their opinion." This letter of Denman's is decided enough to show that the views and rationale of Douglas had not changed his own opinions on the subject, but appeared rather to establish them more firmly than ever in his mind.

In the first published statement of Denman, 1772, on the subject of shoulder presentation, and the child coming doubled similar to Douglas', he remarks: "That he had seen premature and small children often expelled in a doubled-up state, whatever might be the original presentation, when the pelvis was well formed; but that case is a different one to that we are discussing."

From these remarks, and his reasons for the title Denman adopted to express his meaning of the act of "how" the child was delivered, he evidently believed they were an entirely different class of cases; one delivered by a spontaneous evolution, "the child turning on its own axis," the other delivered by expulsion doubled up, even if the child had reached seven or eight months or more. Douglas believed in only one method—external spontaneous evolution.

No one, I presume, will undertake to gainsay the truthfulness which Douglas gave of the cases which he himself saw. His description has not been more correctly or clearly given, though others have attempted to do so; nor, on the other hand, can the fidelity of the description of the cases which Denman witnessed be called in question. Nevertheless, Douglas informs us "that no practitioner will again have the opportunity of witnessing a process such as Denman has described." By this remark of Douglas', it is apparent that there can be no spontaneous evolution or partial version if the child presents with its shoulder in the pelvic cavity. This is the issue I will endeavor to prove incorrect, not only by my own experience, but by the experience of eminent authorities in the relation of their cases.

By some of the continental obstetricians, the title which Denman gave to his cases, though differing so materially from Douglas', was adopted for the latter's cases; but it was not applicable, Douglas thought, to Denman's, and the title is therefore still applied to such cases as Douglas recognized and are spoken of as cases of spontaneous evolution. Although

Denman applied or used the title or name he selected as illustrating his own cases, yet he says "he was in doubt about the correctness of the title." Douglas, however, had no doubt, for he says: "I wish to retain the appellation of spontaneous evolution, both because the fact is known by the form and because it appears to me more suitable than that of expulsion. The word expulsion would rather convey the idea that the fetus is propelled through the os externum, each after line of it succeeding each in regular progression, the latter retaining the form, and every part its relative position as natural as at the commencement of labor."

It is somewhat singular that Murphy, Hodge, Leishman, and others consider that Douglas speaks of his cases as instances of spontaneous expulsion. He decidedly disclaims it, and says "that the fact is known by the term 'Evolution.'" Velpeau, writing as late as 1852 on this subject, tells us that the nature and mechanism of spontaneous evolution are still badly understood. Chailly, on the same subject and about the same time, asserts that evolution is better understood than spontaneous version. Different interpretations have been given to the word evolution respecting the manner or method "how" the fetus is delivered in these cases. Little agreement exists, also, simple as it may appear, as to the proper application of the word.

Some authorities considered that Denman erred in the selection of the word for his cases, and that they might be looked upon as cases of version, while Douglas' were cases of evolution by expulsion. Velpeau considered Douglas' cases as "a simple unfolding of the body of the child past the presenting part;" Playfair, "that the fetus is expelled by long squeezing through the pelvis without the original part being withdrawn;" Radford, that they are cases "of doubling up and expulsion of the fetus." He does not accept Denman's description of an evolution of the child in the pelvic cavity as occurring. C. Clay, Editor of the *Obstetrical Record of Great Britain*, Vol. I., 1848, announces the singular opinion: "That no such circumstance as an evolution ever took place, either in the pelvis or uterus, except where the accoucheur turns the child by his own hand. In such a case, the body of the child performs an evolution; with such an exception, evolution never occurs;" the strict meaning of such a term, he says, being "a turning round of the fetus." This is precisely the meaning Denman gave to the movements of the child in his cases, but Clay ignores the movement as described by Denman, and is a strong advocate of Douglas' rationale to the contrary. Barnes applies the term to both Denman's and Douglas' cases, though he believes that Denman's cases were cases of partial version, and if so, then they were not cases of expulsion, as Douglas' were. He does not accord to Douglas any credit for his explication, as Denman had also recognized the fact before. Agreeably to the definition in Palmer's Pentaglott Dictionary: "Evolution is considered and described in obstetrics as simply a movement supposed to be performed by the human fetus a short time previous to its expulsion. It has no relation to expulsion. It also means a gliding or sliding upwards or away." We all know by our own experience that expulsion means a forcing or driving out or delivery of the fetus through the vulva, by the contraction of the uterus, without a change of the original position, "line after line," requiring considerable force or violent action to accomplish it—in shoulder presentations, as Douglas says, prodigious and continuous action. Some authors, as especially Douglas, "consider the fetus as a passive body, which contributes in no degree to its own liberation." Self-evolution of the fetus in utero, as we all recognize even with the negation of Douglas and others, whether in cephalic or shoulder presentations, is a frequent occurrence of nature before labor has commenced, and it not infrequently transpires after labor has begun, and the waters have been evacuated for several hours. The two cases I have related demonstrate this. There is nothing extraordinary or singular in the evolution, partial or complete, if the child is living, but if not, then it is a passive body, and it cannot contribute to its own liberation. It is a natural version, and it is as natural a phenomenon as spontaneous expulsion is a natural delivery of the child during contraction of the uterus. Spontaneous or natural evolution of shoulder presentations, the arm being external when in the pelvis or even resting low down or on the perineum, are simply partial versions of the child in that position.

Rectification of a shoulder presentation in this position, if artificially accomplished, would be considered, I believe, by all of us in that light. Cephalic presentation if artificially produced to become a breech or foot, is a complete evolution or version. Self-evolution or version of the child may occur at any time after the sixth month, and, as I have related, while labor is progressing. Cephalic has become breech, and breech cephalic, and it may occur, not only once, but several times. Schroeder has found such changes as often as 6 out of 214—1 to 36; Tredenat, as often as 5 out of 60—1 to 12. "The fact is a distinct question, the manner of the evolution another."

Those of us who have given attention to this subject when examining females for the purpose of clinical information and instruction to perform external version of the child, if living, notice how easily it can be effected, when the breech or shoulder presents by making it a head, or the head a breech, and sometimes it is done by only a few touches of the finger on both sides of the abdomen, and even after the evacuation of the waters.

Chailly, as well as Clay and others, deny that the fetus in utero can undergo an evolution or version from its original position after the loss of the waters.

Spontaneous or natural version is generally believed to take place when there is a large quantity of water, when the fetus is not large, and where the uterus is more oblique, and the pelvis badly formed.

Douglas could not conceive how the shoulder of the child could leave the pelvic cavity, and another part of the child, namely, the breech, could descend, and that the shoulder, by some "miraculous effort at the same moment, should recede or any other part of the child, once descended, ever withdraw into the uterus."

Two methods have been considered as explaining the fact, and the evolution in the delivery of the child in the class of cases we are considering: general contraction and irregular, and I shall presume to offer a third—retraction of the uterus, recession following, then evolution. The first is that which Denman gave, accepted by Velpeau and adopted by others, as explaining "how" the evolution may take place, either by the change of position of the child and another part of it presenting, or the delivery without any change or alteration of the original part. Denman's explanation is that "by the long-continued action of the uterus the body of the child is brought into such a compact state as to receive the full force of each returning action. The body being too large in its doubled-up state to pass through the pelvis, the uterus pressing upon its inferior extremities, which are the only parts capable of being moved, they are forced gradually lower, making room as they are pressed down for the reception of some other part into the cavity of the uterus, the body turning on its own axis, the breech of the child is expelled as in an original presentation of that part." Velpeau considers that "when the womb contracts, if the fetal ovoid is well placed, it becomes compressed equally in every direction; but if, on the contrary, it is in a deviated position, its extremities suffer almost alone the whole effort of the contraction, and either the head or the breech will be brought to the superior strait or into the pelvis."

Cazeaux suggested a different explanation, and believed that "the irregularity of the contraction of the uterus is not wholly foreign to such an effort as spontaneous evolution or version." It is what the Germans have described as partial contractions of the womb: the organ appears to contract over a limited part of its extent, the remainder remaining entirely inert. In other words, the uterus contracts on one side and is relaxed on the other.

Cazeaux is credited with this view of the subject, but Cazeaux candidly admits that, on his part, "it is purely theoretical, and that he had never witnessed an instance of this kind." I fail to grasp the meaning of the explanation, as it is difficult to conceive one-half of the longitudinal muscular fibres of the uterus can be in action, as they are the chief motor power of the uterus, while the other half is in a state of rest. From the anatomical display of the muscular structure of the uterus, it is easy to understand when the circular fibres are contracted the longitudinal may be at rest, or when the orbicularis muscle is in contraction, the rest of the uterus may be in a state of relaxation. Although I cannot deny it, for I have, like Cazeaux, never witnessed this method, and do not avail myself of the explanation, for I conceive that an entirely different rendering may be offered of how the evolution or version may be or is effected sometimes; nevertheless, as a case or two have recently presented themselves to my attention, and as relating to the subject, I will refer to them. They may be instructive as tending to elucidate one of the methods under consideration, although in both of them the shoulder of the child was at the superior strait, and not in the excavation of the pelvis. Very few of us may have seen an instance of the kind.

Dr. Genueil's case:

> A woman, aged twenty-eight, fourth pregnancy, full-sized pelvis. At full term, labor commenced by slight pains. By noon next day, the pains had assumed an expulsive character; membranes ruptured in the presence of a midwife, who detected an abnormal presentation.
>
> Dr. Genueil, on being summoned, found the left arm swollen and hanging from the vulva; fetal head in the right iliac fossa; os tightly around the shoulder. The hand could not be introduced into the uterus. Decided not to attempt version at that time, and resolved on embryotomy. At the end of half an hour, having made his preparations, he had his hand on the uterus, and was astonished to find that in the left side there were strong contractions, while on the right side there were none.
>
> Thinking, therefore, as the pelvis was large, spontaneous version or evolution might be accomplished, he left the case to nature. By 4 P.M., four hours after, the shoulder began to recede, and by 4.30 the breech was presenting. The contraction then became uniform, increased in vigor, and at ten minutes to 5 o'clock a dead child was expelled.

The author believes that the powerful contractions on the left side of the uterus forced the breech down, while the relaxation on the right side allowed the head lying on the right iliac fossa to recede. (*Annal. de Gynécologie*, June, 1876.)

M. Tredenat (*Lyon Médical*, Dec. 7th, 1879), relates the following:

> Primipara; pains began in the evening; next morning at 2 A.M. membranes ruptured; at 8 A.M. admitted into maternity. Examined and found shoulder presentation; back anterior; os as big as a florin; preparation made for version; while waiting, a powerful uterine contraction affected the left half of the uterus, right remaining flaccid; head felt through the parietes, and slightly raised; another similar contraction, but passing more to right, and with this the upward movement was more pronounced, and on examination the axilla was felt. In six or seven minutes more, contraction continuing, the breech presented. An hour after, child delivered living. The uterine contractions began at the left and passed to the right side of the uterus.

No two classes of obstetrical cases, bearing the same title, and yet so widely different as to the position of the shoulder, one in the pelvic cavity and the other external to it, and the manner and method of delivery as those of Denman and Douglas, could exist. They are spoken and written of as though they were the same, and the same "series of events" transpiring. The differential diagnosis is clearly marked, and distinct between them.

In *Denman's* cases—The shoulder, with the arm protruding, was in the pelvic cavity, and in some cases so low as to press upon the perineum.

In *Douglas'*—The shoulder, with the arm protruding, was external to the pelvic cavity, and so far out as to be placed under the symphysis pubis, and the chest on the perineum.

In *Denman's*—There was a distinct change of position of the child, the shoulder receding from the pelvic cavity and the breech descending.

In *Douglas'*—The shoulder was out of the pelvis, remained so during the labor, and did not change the original position till its delivery.

In *Denman's*—The breech was expelled first with the feet, then the abdomen, next the chest, and finally the shoulders, head last.

In *Douglas'*—The shoulder and arm, then the chest and ribs, then the abdomen, next the breech, then the other shoulder, head last.

In *Denman's*—While the breech was external, the shoulders were at the superior strait.

In *Douglas'*—The breech was at the superior strait, while the shoulders were external, under the pubes.

In *Denman's* cases—Spontaneous evolution or rather partial version could be accomplished naturally, as well as artificially sometimes.

In *Douglas'*—No natural or physical power could possibly affect or alter the position of the child delivered thus far out of the pelvis, and it must be delivered by the strong and powerful and continuous action of the uterus, and thus obey the laws of natural delivery, doubled up as the fetus is, till the breech appears, going through the same process or mechanism of delivery as flexion, descent, rotation, and expulsion. In truth, the class of cases which Douglas saw of shoulder presentations delivered, thus far by nature, must be completely delivered by the same power. They are therefore natural deliveries. Should the delivery not be accomplished, then the sacrificial act must be performed. If the natural delivery of a shoulder presentation, shoulder and arm external, is to be called a spontaneous evolution of the fetus, the child being dead, or an unfolding of the fetus without any change of position of the child from its original one, then every case of breech presentation, with the breech external, going through the various changes of the mechanism of delivery, may justly be called spontaneous evolution.

In corroboration of the views, and the cases I have given as evidence of the retractive power of the uterus, and the recession of the child from the position it occupied, as a consequence of that act, and "how" the evolution of the fetus may or does take place, besides that of general or irregular contraction affecting it, I refer to a case taken from the *Obstetrical Record of Great Britain*, Vol. I., 1848. It was cited by Clay as proving the correctness of his and Douglas' views, while on the contrary, as you will recognize, it holds no relation to his cases—for the shoulder was in the pelvic cavity. It illustrates the views of retraction and recession. It is these cases which are so often spoken of, or published as similar to Douglas', and yet are totally distinct.

Dr. Winterbottom's case:

> By a vaginal examination, the arm presenting externally, and on passing the finger, I felt what was considered to be the shoulder; I decided to turn; on passing my hand to change the position of the child, I recognized that part, which I had taken for the shoulder, to be the breech obliquely placed, and which was entering the pelvis. A strong contraction occurred which pushed down the breech, during which event the arm receded into the uterus. In a few minutes the child was expelled.

A more perfect case showing the retractive power I will cite from my own practice:

CASE III. — *Tedious labor — Arm protruding externally— Shoulder in the cavity of the pelvis low down—Spontaneous evolution or version of the child.*

During the spring of 1861, I was sent for to visit a patient at Bellevue Hospital with shoulder presentation, arm protruding.

On seeing the patient and making an examination, I found the pelvis filled with the shoulder of the child, and resting nearly on the perineum. This condition of affairs had existed for over an hour. As the shoulder was not external, I decided to try and accomplish the delivery of the child, if possible, while under an anesthetic by version. The pains were not, however, very strong. My house physician was requested to notify the house staff to be present. On examining again, I thought I recognized some change in the locality of the shoulder, and requested him to remain. In a few moments after a slight contraction, the breech was found presenting across the superior strait and the arm receding. In ten minutes more the child was delivered by the breech; weight six and a half pounds.

Barlow, the celebrated surgeon of England, writing as far back as 1792 on this subject, and in his surgical and obstetrical essays, published in 1822, recites the following case, which is explicit, in his description of the case, of the retractive power of the uterus and the following evolution:

Patient at full term of gestation. Thirty-six hours after labor had commenced, on examination, I found the arm of the fetus presenting, and the hand pushed out of the os externum and very much swollen. Waters evacuated early. Pains strong and frequent. I made an attempt to introduce my hand but failed; a second attempt and failed again. The action of the uterus was such as to forbid any further attempts. The shoulder of the child now became forcibly pressed upon the perineum. The woman continued in this misery till the following evening, when the pains of the uterus were so great that I dreaded a rupture of the uterus. On examination I was agreeably surprised to find the presenting arm of the child retreating, and the breech supplied the place of the shoulder and was expelled in a few minutes by the efforts of the uterus.

The case of Barlow resembles those of Denman's and my own, by the change of position of the child, "turning on its own axis." It is conceded that Schaenider anticipated Denman in the recognition of the fact, but he gave no explanation of the manner of the evolution. Preceding all knowledge of these important cases, we have the two most remarkable, historical, and memorable events of this nature recorded in the Book of Genesis (chapters 25 and 38). The first case ever recorded of twins was that of Rebecca and her sons, Esau and Jacob (chapter 25). The second that of Tamar (chapter 38) and her children, Zarah and Pharez.

In Rebecca's case, "when Esau came out first, red all over with hair as a garment, his brother Jacob followed, and with his hand took hold of Esau's heel and came out."

In Tamar's case, "when Zarah came forth the midwife bound a scarlet thread around his arm, saying, 'thou camest forth first,' and afterwards it came to pass that he drew back his arm, and Pharez came out," and she said, "how hast thou broken forth, the breach be upon thee."

Both these scriptural instances not only verify the division referred to, but they illustrate the difference existing between true spontaneous evolution and retraction, and spontaneous expulsion solely.

The fourth case of Douglas, as previously related, of twins, applies with some force, as a case of expulsion simply, to the similarity of the manner of the "coming forth of Jacob" and the quickness of the delivery in both instances, as well as in Case I.

I know of but one authority, Dr. Kelly, of Manchester, England, who referred these cases, especially Denman's, for an explanation of the manner by which the evolution was effected, to the relaxation of the uterus.

He makes no reference to the retractive power of the uterus, as the agent or motive power by which the recession of the fetus takes place from its original position "by turning on its own axis." Relaxation alone, without the movement of the fetus itself, could not produce it; a dead child could not either. Kelly, during the heated discussion which actuated the minds of the profession at that time, dissented from the general views and opinions, that the evolution was produced by contraction of the uterus, in those cases similar to Denman's.

I now reach the important question of "how" this evolution occurs. I will let Barlow put the question, though he renders no explanation, for he asks, "how the recession of the fetus in the uterus or pelvis was effected in his case; " and he answers it by saying, "I will not attempt the explanation, but recognize the fact that nature has accomplished it." The question was, however, long before Barlow, inquired of by the astonished midwife, as we have seen, in the case of Tamar's twins, "' how, hast thou broken forth?' " Burns says "it is an impossibility for the shoulder to mount up into the contracting uterus, even if it is in the pelvic cavity partially or wholly; and if this is impossible, how much more so could it be when the shoulder is protruded externally?" Every one of us, I think, will coincide with this view, that no change of position or evolution of the fetus could take place during the contraction; and if relaxation does not follow, and the pains are continuous or with very slight intervals, the child must be delivered as in natural labor, whether the shoulder is in the pelvic cavity or out of it. Should, however, relaxation take place, as in ordinary labor at shorter or longer intervals, then the natural retraction of the uterus occurring, the shoulder of the child will be lifted or changed from the position or locality it occupied, and a partial evolution or version ensues. Contraction following, the upper end of the ellipse of the child is forced down, and after the contraction ceases, it will be drawn up still further and "turned on its own axis," a more complete evolution or version effected. The recession of the fetus, if alive, is assisted by its own movements after the retraction.

This retraction may be so strong and effective that the fetus is at once changed from its original position, and assumes another presentation.

I will illustrate this point by the following case:

CASE IV.—*Tedious labor—Cephalic presentation—Application of the forceps at the superior strait—Retraction of the uterus, and the head of the child drawn from the blades of the forceps—Spontaneous version or evolution.*

In consultation with Dr. Oliver White, April, 1865; patient, aged thirty-six; labor had existed for several hours; head presentation; first position, at the superior strait; waters evacuated fully ten hours; pains efficient though short. It was decided to overcome the difficulty, if possible, by the forceps. Application easy; instruments well placed, as it was believed, on the head. Slight traction was made for several minutes during the contraction. After a contraction the forceps were noticed as having lost their grip, though retained in the hand and held gently till the next pains. The slightest traction on them and they came away. I was much astonished at this circumstance, as well as Dr. White.

I do not recall a single instance where the forceps when applied had slipped off after their application. In this instance the child's head was removed from their purchase solely by the retractive power of the uterus after a contraction. On examination, a foot and the breech were found to occupy the superior strait instead of the head. The child was delivered alive very soon after.

Retraction of the uterus, whether strong or feeble, is as natural an act as contraction is to deliver the child. It is not therefore, as Douglas informs us, "a miraculous act," or an "impossibility" for cases of shoulder presentation, the arm protruding, to have the position changed, though the presenting part is deep in the pelvic cavity. It is, I believe, as natural or spontaneous a method or manner to relieve some of these rare and important cases which, if not occurring, would either be delivered doubled up, or would have to undergo the mutilation of the fetus for their delivery.

Those of us who have given any attention to the ordinary management of labor comprehend how well and perfectly nature adjusts her work in some cases of cephalic presentation. The head may be low in the excavation of the pelvis, even resting on the perineum, and after a contraction, relaxation naturally follows, retraction occurs, and the head is lifted up or recedes nearly as high as the superior strait, fully three inches. Contraction ensuing, it is again driven down to its former place but further, and finally by the process of retraction and contraction it becomes fixed, and is eventually delivered by the contraction of the uterus itself. To such an extent, F. Ramsbotham remarks, "is the recession sometimes carried, that it may give those not well acquainted with the process an idea that the uterus has ruptured, and that the child's body has passed partly into the abdominal cavity." Now what causes this recession of the child, or how does it take place? Relaxation of the uterus, simply, cannot accomplish it. The movements of the child are not powerful enough to effect it. Expulsion of the child is the natural sequence of contraction of the uterus. Recession of the child, in this class of cases, after the relaxation occurs after contraction, is the natural sequence of the retraction of the uterus.

In the appropriation of the word retraction, as aiding or causing the "same series of events" of the child that Denman wished to elucidate, I may have erred. Doubts, consequent upon the correct meaning and application of the words retraction and recession, may exist in the minds of some. By retraction, I mean the physiological motive power or action of the uterus which takes place after contraction and during the relaxation, by which the shoulder of the child or any other part is lifted or drawn up or back from its position in the pelvis, and the arm or head consequently receding.

No word so clearly defines the meaning of the act in this class of cases. It is as physiological an act of labor as contraction of the uterus, and is as wisely adapted by nature for the benefit of the mother and child, though the reverse of contraction.

Recession of the child is simply the respondent of the act of retraction, and does not aid in producing the movement or change of position of the child itself.

Accepting the correctness of the opinions of those who think that Denman erred in selecting the word evolution instead of partial version, to express the meaning of the "series of events" he desired to delineate when "the child turned on its own axis" in this class of cases, it must be conceded that, if he had, it would or might have spared much bitter feeling which was engendered consequent on the discussion which took place. It will be admitted also that the selection of that word cast an obscurity or mystery on the subject rather than elucidating it. The acceptance by Douglas of the same word only tended to increase the obscurity or mystery.

The obscurity which existed has not altogether been removed at the present day, as there are some of the profession who still do not have a just comprehension of the application.

TREATMENT.

It is considered by some authors, as well as by some of the profession, that the views and opinions of Denman and Douglas respecting the treatment or management of these cases "tended to produce a passive conduct on the part of the practitioner," and that was "to wait for the evolution to take place," and not resort to version to effect the delivery earlier. This remark would apply to Denman's cases, but could not to Douglas'. Should the distinction I have referred to be admitted, and I do not see why or how it should not, then there are two distinct classes of shoulder presentations, arm protruding, which we have to deal with: one with the shoulder in the excavation of the pelvis and as low as the perineum; the other with the shoulder entirely external and the arm under the pubic arch.

Accepting this distinction, an entirely different line of treatment must be pursued for each. With the first, version may be attempted in any manner which may be considered advisable, with some prospect of success. With the second class, version cannot be thought of. It is totally impracticable, though some have advised it and failed. If attempted, it would place the patient in greater jeopardy. Douglas himself discountenanced it.

Denman, in reference to the first class, as they were similar to his own, uses this language, although severely censured for delay in version: "It is possible, when we have conducted ourselves in the general expectation, that the evolution could be made, that the pains may fall off, or be unequal to the effort, and we may be disappointed. It might then be apprehended that the difficulty would be increased. But though the evolution was not perfected, I have not found that consequence. The child not expelled has been brought into such a state, that afterwards I could pass my hand with ease and bring down the feet, though an attempt to do this at the beginning of the case had failed."

Should we have decided, from the nature of the case, that there remains nothing but the destruction of the child, this may be done either by amputation of the arm or shoulder, or both, hopin gthat then the evolution or version may take place; or by evisceration, decapitation, or the Cesarean section. A few instances have been recorded where the child was living after amputation of the arm. As a general rule, the child is dead, even if evolution has taken place, and the operation may be proceeded with at once when that fact is recognized. Delay must still be exercised if the child is living, though the labor may have continued for several hours, and more especially at this day than formerly, as there is such an abhorrence of embryotomy. Dewees has said, though he had no practical acquaintance with the cases, "that we must keep no truce with the child."

The first of all the operations which naturally suggests itself is amputation of the protruded arm, either to facilitate the version if necessary, or that a natural evolution may occur perchance. Should this not succeed, then evisceration of the thorax may have to be done.

Pénard, of Rochefort, 1879, is a strong advocate for it, and considers it a substitute for embryotomy. It is condemned by others.

Pinard, of Paris, 1879, agreeing with this opinion of Pénard, of Rochefort, considers that when the child is dead it has been unjustly condemned. In cases where the shoulder is external, and the acromion fixed against the lower border of the symphysis pubis, the arm should be amputated, and sometimes the projection of the scapula destroyed, and he says, "the trunk will readily recede, and the lower end come down." Accepting this admission of Pinard, of Paris, respecting the recession of the child after the operation, the recession certainly could not take place by relaxation of the uterus alone, and it cannot be accomplished by any other motive power or manner than the retractive powers of the uterus. It is virtually a spontaneous evolution or version of the fetus, shoulder externally, after the obstruction is removed from the lowest part of the pelvic cavity. Pajot and Stoltz perform version in cases in which it is thought impossible after simply amputating the arm. These were, however, cases only partially engaged in the pelvic cavity (*Annales de Gynécologie*, December, 1879).

Hodge acknowledges that he had never seen a case, and this has been so with many of the authors who recommend "to remove the arm and shoulder, including the whole scapula, and even the clavicle. The thorax should then be opened, and if necessary the side of the abdomen, the crotchet then passed into the body and fixed on the pelvis of the infant, and traction made from the breech downwards."

Dr. Alexander H. Stevens, of this city, as far back as 1819 executed a similar course, and Dr. Francis, in his comments on the case,[1] considers that he acted judiciously and wisely.

Dr. Stevens first removed the protruded arm, then opened the chest, removed the contents, and tried to bring down the body with a blunt hook, but ineffectually. Then he made an incision along the spine high up, down to the hips, introduced a blunt hook, and extracted the child breech foremost; delivery occupying two hours.

It will be noticed from the opinions expressed by the authors cited, and the methods of treatment or management advised and executed, that the destruction and laborious operations have been principally and chiefly on the upper half of the body of the child. It has been remarked previously that it was almost an impossibility to return the shoulder of the child when external, and it appears equally as difficult to effect the delivery of the child when the arm has been amputated and evisceration performed. Douglas never performed any of these operations, for all his cases were delivered naturally. He, however, enters his decided protest against the doctrine, as recommended by some, "of fixing the instrument at random on any part of the fetus which happens to be the nearest, because if the physician fix it on any of the superior ribs, he might pull with Herculean force and yet not be able to bring down the body, unless he separate the head or decapitate it."

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[1] Denman, "Midwifery," edited by Francis.

In all the cases reported as delivered naturally, nothing is said respecting the laceration of the perineum, though it is admitted that it is excessively distended by the lower part of the child's back, and that it seems impossible it could or would escape rupture.

It is apparent to my mind that the principle which has been advised, that the operation should be commenced on the upper half of the body of the child, is an incorrect one. The chief object, and in fact the only one, has been by the authors and operators to lessen the size of the child, in the hope that it could be easily delivered.

The evidence is decidedly opposed to such a principle.

The great difficulty which does exist, after one-half of the upper or superior part of the child is delivered externally, is from the lower end of the scapula, or middle of the spine to the pelvis or the breech, which is distending the perineum so extensively and to the length of four or five inches. Burns informs us "that if we consider a line drawn from the side of the neck to the end of the thorax, where the shoulder is at the vulva, is four and a half inches, the difficulty must be and is to get down the body of the child from the end or lower part of the thorax to the breech." This is the greatest length of the substance which is to pass or to be born.

This non-delivery of the lower portion of the body of the child, therefore, has necessitated the various methods, singly or combined, for destroying the infant.

The Cesarean section has been performed in the United States for these cases nine times; six living, three deaths. To obviate the destruction of the child and to avoid the Cesarean section, I advise the division of the perineum freely and laterally to the extent of three or four inches to allow the breech to be delivered, and thus spare the sacrifice of the child. If it is performed early, when the breech is resting on the perineum, and no chance of an evolution or turning is to be expected, the life of the child may be saved if living, and the delivery be prompt and successful with or without gentle traction on the breech. Surgical aid for the restoration of the perineum can be be given to the mother as soon as convenient after the birth of the child. This course of treatment has also claimed my attention in face cases, chin posteriorly, when the head of the child was in the pelvic cavity, so as not to sacrifice the child (*N. Y. Med. Journal*, 1869). I will illustrate my suggestion by the recital of a case of double fetus, nearly similar in appearance to the Siamese twins, which occurred under my notice in April, 1861. The post-mortem was made by my friend Prof. J. W. Gouley.

I refer to this case, as it was the lower part of the body of the child which it was utterly impossible to deliver unless the child had been mutilated. It presented a similar appearance of the back of the child, as in the shoulder cases, arm external, which we have been considering. Before I relate the case, I shall present one precisely the same as my case of double fetus, shoulder presentations, where both of the shoulders and arms were external, instead of one; the head of the child, however, was resting against the internal pubic arch.

It is an observation of Peu, of which Nannoni in his work on delivery, 1785, says:

> "Both arms, together with the shoulders external, reached the vulva; violent traction alone brought down the fore part of neck. The head remaining internal, a fillet was passed over the back, near the breech. Traction made and the breech descended, and the woman recovered. Traction, as Nannoni says, here took the place of the uterine effort, and the child was born as in spontaneous evolution."

De la Motte sustains this point respecting the lower part of the child being the first to be delivered, instead of the upper, by his case.

> "Both the arms and the shoulders were external. Head internal. The two arms and the thorax advanced towards the vulva. The practitioner made unusual efforts to bring down the feet.

The limbs were, however, fractured, and after strong efforts, by De la Motte, the breech descended first and the child was born."

CASE V.—In April, 1861, I was requested to visit Mrs. E. whom I was engaged to attend in her confinement. She was exceedingly large in form around the abdomen; extremities very edematous. Saw her at 7 A.M. in consequence of an immense discharge of the waters.

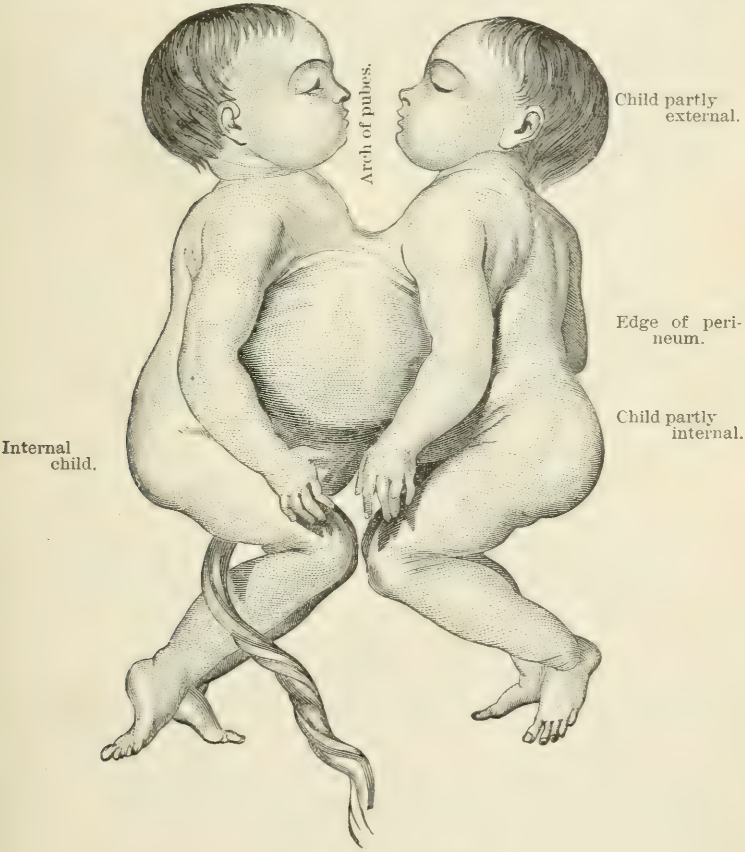
On examination, os uteri fully dilated. Cephalic presentation, head resting on the brim of the pelvis, partly inside. Pains every ten minutes and prospect of an easy labor. 9 A.M. not the least advance of the head into the pelvis. Presuming that there was some special cause which I was not conversant with, I decided to deliver her with the instruments. Auscultation recognized a strong fetal pulsation; palpation and external manipulation, a large child. From the large quantity of water which had flowed off I might have suspected a monster, as this not unfrequently happens in cases of that nature. My friend Dr. J. O. Stone was requested to join me and give the anesthetic. At 10 A.M. no change. Forceps applied. Contraction more active. Head brought in half an hour as far down as the perineum. By strong traction the head was delivered. Child dead. A towel was then placed around the neck, and with considerable force the shoulders were also delivered and the arms. The back of the child presented at the vulva, and the great distention of the perineum must have been fully seven to eight inches. The hand could not be introduced into the vagina. The back of the child from the middle of the dorsal region occupied the perineum.

Not knowing, as I said, the cause, the question of evisceration was entertained to accomplish the delivery. I decided, however, to divide the perineum laterally for some distance, and should the child not then be born, to perform evisceration. The division was made during a pain, and almost immediately the breech appeared, and with a finger in the anus, the child was tilted out. As soon as the breech of this child was born, the feet of a second presented; seizing them this child was delivered in a few minutes. There was but one cord. The children weighed fifteen and a half pounds. A glance at the diagram will at once show the cause of the difficulty in the delivery.

While the head of one of the twins was at the superior strait internally and resting on its inner surface, the other, when partly delivered, was resting on the external surface. The union which existed between them occupied the arch of the pubes. The pubes being the crotchet.

The principal obstruction or barrier which prevents the child from being delivered in these cases of shoulder presentation, arm external, is the greatly distended perineum, and when this part is set free, the child will be delivered from its arrest, and the sacrificial act will or can be avoided, the mother and ourselves spared the unpleasant, disagreeable and distasteful operation. When performed early, according to the nature of the case, we may have sometimes the gratification of witnessing a living infant.

Denman was censured bitterly for advising delay, under the expectation that an evolution might or would ensue, rather than proceed to turn the child. We have heard his reasons why he did so. We must not forget that it is an easy matter, even when our experience has been very limited, to suggest the operation of version, but the circumstances by which that operation may be surrounded will or may preclude any attempt at the accomplishment of it with success. "The fact is one thing, the evolution another," whether spontaneous or arti-



Delivered April, 1861.

ficially performed. Denman was cognizant of thirty cases from various sources, and only one living child. From this striking disproportion of successful cases, a medical practitioner of London stated before the London Medical Society, "that Denman had done more mischief by his article on spontaneous evolution than good in all his works."

The tenor of my remarks, independent of the experience I have presented in this class of cases, will corroborate the correctness and truthfulness, as I believe, of Denman's description of his cases and the manner of the evolution, that is, "by the child turning on its own axis," in the excavation of the pelvis when the shoulder occupies it; and that in this kind of cases such a movement does transpire, and can take place.

There is no more "improbability" of the occurrence that the shoulder should ascend and the breech come down, than in those cases referred to by Fichet, where the shoulder is in the excavation, and the arm is pulled upon with some force, the breech ascends and the head descends through the pelvis, *i. e.*, cephalic version.

I have not seen a case of spontaneous expulsion similar to Douglas, with the exception of the one I have related of double fetus, nor have I any similar to Fichet's. I have, however, witnessed an instance in the case of a lady with amplitude of the pelvis, where the child in her first labor presented by the face, and which was delivered by one strong continuous pain through the whole depth of the pelvis in that position. In her second labor, it was a frank shoulder presentation, back anterior, and this child was expelled with the head flexed on the chest after three or four severe and powerful pains. The weight of the children was about six and a half pounds.

Spontaneous evolution or version of the child, whether in the pelvic cavity or in utero, is not, therefore, confined to shoulder presentation alone, for it occurs, as we have seen, when other parts of the fetus present, though it may be doubled up, and if not unfolded when in the pelvic cavity, it must be delivered as a natural delivery in that state.

The "why and how," as Barlow asks, the evolution or version takes place, though preceded by the midwife in the case of Tamar, who exclaimed with great surprise, "How hast thou broken forth?" I have desired to explain by another and different process than those known at the present time as general and irregular contractions of the uterus. I have done this from a critical examination of the views and opinions of the most prominent authors, who have written on the subject, and from my own experience and investigations; with what success, I leave to the judgment of the profession to decide. The nature of the subject, the arguments adduced, and the suggestions I have thought proper to offer, not only respecting the manner or "how" the evolution or partial version takes place, but also on the management of the cases by the simple procedure advised, must be my excuse for the length of this paper.

A CASE OF COMPLETE EVENTRATION OF THE FETUS IN UTERO COMPLICATING LABOR.

BY

HORACE M. BROWN, M.D.,

Milwaukee, Wis.

NOVEMBER 15th, 1880, I was called to see Mrs. P——, Irish-American, age 22, primipara, and found her in the second stage of labor.

Examination revealed a mass of soft, placenta-like material lying with the shoulder of a child in the superior strait. Although the mother had had no subjective symptoms of placenta previa, yet on the strength of the evidence of the digital examination I made that diagnosis.

I advised that the child should be turned and delivered, but the friends objected to any interference and requested delay. At the end of an hour I again examined the woman and found the shoulder of the child in the same position opposite the right sacro-iliac synchondrosis, and in the vagina a large mass of material which had the feel of a coil of intestines, in company with a tumor the size of one's fist. The pains had been very frequent and unusually severe, and on first thought I supposed that the uterus had ruptured and that there had been protrusion of a floating kidney, with some loops of intestine through the fissure, but as the woman's pulse indicated nothing so serious, I decided that there could be nothing of that nature. I called in Dr. G. D. Ladd, and stated the case to him. Upon returning to the lying-in room I introduced my hand underneath the coverings and found a mass of material protruding from the vulva, which upon inspection proved to be the liver, spleen, kidneys, and intestines of the child.

Dr. Ladd made traction on the mass and easily delivered a male child, the body bending backward so that the child's occiput rested on its buttocks; the placenta followed immediately. The woman made a good recovery.

The anterior abdominal walls of the child, instead of joining at the mesial line, were reflected upon themselves and attached to the posterior abdominal wall on either side of the spinal column at a point opposite the bodies of the third, fourth, and fifth lumbar vertebræ; thence were reflected above upon the under surface of the diaphragm, and again united at the lower end of the sternum; below they joined, and passed downward and forward over the upper surface of the bladder to the pubes. All the abdominal viscera were excluded from the cavity except the bladder, and the inferior portions of the ureters, which passed in company with the right and left hypogastric arteries through an opening on either side of the spinal column, between the reflection of the abdominal wall in front, the psoas muscle laterally, and the body of the fifth lumbar vertebra internally. The umbilical vein entered the liver directly, and was joined by the hypogastric arteries at a point opposite the junction of the cystic and hepatic ducts.

The child had reached only the eighth month of development.

After a careful search through all the obstetrical records at my command I believe this case to be unique with the exception of a case reported in the *Obstetrical Journal of Great Britain and Ireland*, October, 1880, by Prof. Athill, of the Rotunda, Dublin. Its importance in a medico-legal point of view will be readily appreciated.

The case was related at a meeting of the Dublin Obstetrical Society, April 3d, 1880, as follows:

"On being called to see a woman in labor, I found protruding from the vulva a portion of intestines like those of an adult. I understood that the patient had been upward of twelve hours in labor, under the care of a midwife who had brought her to the hospital.

"The presumption in my mind was that rupture of the uterus had taken place, and that the midwife had pulled down the woman's intestines, and that the patient was moribund. On feeling her pulse I was surprised, however, to find it was quite regular, and I at once saw that my suspicion of improper treatment was unjust.

"On passing my hand into the vagina, I found I could trace the intestines inside the os uteri, and could feel nothing else except an irregular mass. I was then satisfied that I was dealing with a monster. I also felt an arm, and passing up a blunt hook I got it over the child's shoulders, and without any very great difficulty delivered the woman of this monster, notwithstanding that the head is of very large size. It will be seen that the entire of the lower anterior portion of the abdominal wall is wanting, the intestines and the liver are free and the legs are malformed.

"As far as I am aware the specimen is unique. I thought it to be of medico-legal interest, as a case that might have been mistaken for the result of malpractice or accident. The child was dead. The protruded intestines were immensely distended, and as large as those of an adult."[1]

As regards my case, I endeavored to obtain the specimen for preserval, but the parents would not permit it, and so I was obliged to content myself with the above description, made at the time of delivery.

I should be greatly obliged to any member of the profession, or midwives to whom this article may come, who would send me statements of any similar cases which may have occurred in their practice, or of which they may have well authenticated reports.

LACERATION OF THE CERVIX AS COMPARED WITH COMPLETE INTERNAL DIVISION OF THE CERVIX.

BY

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AT the last annual meeting of the British Medical Association Dr. Montrose A. Pallen, of New York, read a paper[2] entitled, "The Etiology and Treatment of Lacerations of the Cervix Uteri," which gave rise to considerable discussion. In the course of this discussion the question was asked, "whether, in cases where the cervix had been divided by the knife intentionally, the operation of sewing up the cervix ought to be performed; and if not, why not?" In commenting upon this discussion, Dr. Joseph Griffiths Swayne remarks[3] that the question is one which nobody appears to have answered. A recent writer in this country similarly asks:[1] "Why should the gynecologists do with the scissors or knife what they deplore so much when the injury results from parturient efforts? If it is right to repair parturient laceration of the cervix, why is it not just as proper to mend more extensive injury of a like kind done by the scissors or knife of the gynecologist?" As the same question is frequently asked, and as the idea is more or less prevalent that these two operations are two extremes between which gynecological practice oscillates, and that the acceptance of one operation as justifiable nullifies all argument in favor of the other, I shall in this paper attempt to show the fallacy of the reasoning upon which this idea is based, and to prove that the gynecologist may to-day in one patient sew up a bilateral rent extending to the cervico-vaginal junction, and to-morrow in another patient may make a bilateral incision of the cervix to the same extent without laying himself liable to the charge of inconsistency, or of "operating at cross purposes on an alternate system of ruin and repair."

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[1] Obstet. Journal of Great Britain and Ireland, Vol. VIII., No. 10, Oct. 31st, 1880, p. 623.

[2] British Medical Journal, September 4th, 1880.

[3] Obstet. Jour. of Great Britain and Ireland, Vol. VIII., No. 12.

A certain amount of laceration of the cervix appears to be the normal condition of women who have borne children, since in all such women the os tincæ takes the form of a transverse slit instead of the circular opening characteristic of virginity. Such lacerations never produce any injurious results. It is only when the laceration is lateral and extends beyond the crown of the cervix upon one or both sides that evil consequences follow. The evil consequences consist of the condition variously styled by different writers as "chronic metritis,"[2] "diffuse connective tissue proliferation,"[3] "areolar hyperplasia,"[4] and "sclerosis uteri,"[5] accompanied by more or less pelvic cellulitis and in the majority of cases by anteflexion of the uterus. That the anteflexion is a complication and not a cause of the chronic metritis is shown by the fact that in quite a large minority of the cases where the latter is found in connection with laceration of the cervix the former is absent. The dependence of the whole train of symptoms upon the laceration of the cervix is proven by the fact that, when the laceration is remedied by operative means, the pathological conditions referred to above invariably disappear.

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[1] Boston Med. and Surg. Jour., Vol. CIII., No. 12, p. 269.

[2] Scanzoni, Die chronische Metritis. Wien, 1863.

[3] Klob, Pathol. Anat. der Weibl. Sexualorg. Wien, 1864.

[4] Thomas, Diseases of Women. New York, 1876.

[5] Skene, AMER. JOUR. OF OBSTETRICS, Vol. V., pp. 387 and 481.

I do not propose in this paper to discuss in full the subject of laceration of the cervix. I shall refer only to as much of its pathology as is necessary to show the essential points of contrast between accidental division of the parturient cervix and surgical division of the nulliparous cervix. According to some recent investigations[1] it would appear that the period required by the womb for the completion of the process of involution is about eighteen days. This estimate was made from measurements of the depth of the uterus, taken at various periods after labor, without reference to the thickness of the uterine walls. I believe, however, that the period required is much longer, since I have repeatedly by bimanual examination examined uteri at three, four and five weeks after labor, where there was no laceration to retard involution, and have found the womb at such times larger than at subsequent periods when involution was complete. Schroeder[2] says that the womb returns to its normal size in about six weeks, and I think that the majority of observers agree with him in this opinion. The manner in which the process of involution takes place is now well known. The unstriped muscular fibres of the uterus, by their own contraction during and after labor, so compress the blood-vessels as to be deprived of the amount of blood necessary to maintain their morphological integrity. Their vital properties are lost and they are converted into fat, under which form they are carried off by the blood. At the same time a new-formation of cells begins in the external layer of the organ, whereby the uterus is built up again. If during the process of involution the circulation of blood in the uterus is deranged by any irritating cause, the process is interfered with. A congestion of the organ follows, and the muscular cells receive sufficient blood to furnish to them the material for the continuance of a certain amount of their vital activity. Instead of undergoing fatty degeneration, they continue for a time to enjoy a low grade of existence, and at the same time an active proliferation of connective tissue ensues, so that the uterus increases in size instead of diminishing. This condition having once become established, the womb has no tendency to return to its normal state. After a time proliferation ceases, the newly formed connective tissue undergoes cicatricial contraction, the uterus consequently diminishes again, although not to its normal size, and the uterine walls upon section present a dense, white cartilaginous appearance and creak under the knife when cut. The womb has now reached the final stage of chronic metritis or chronic interstitial hyperplasia and the patient is a confirmed invalid.

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[1] Sinclair, Transactions of American Gynecological Soc., Vol. IV.

[2] Manual of Midwifery. Amer. Transl., New York, 1873, p. 100.

The first factor in this pathological process, as I have already stated, is the presence of some irritating cause which deranges the circulation of the uterus which is undergoing involution. This cause may vary greatly in its nature. It may consist in leaving the bed too soon after confinement, heavy work or too severe physical exertion of any kind before the process of involution is completed, retained blood-clots or fragments of placenta, too early sexual intercourse, and other similar circumstances. Any one of the causes mentioned will produce a congestion of the womb which will interfere with the process of involution and establish the condition of diffuse interstitial hyperplasia as is frequently seen in practice. The same effect is produced by the presence in the cervix of an open lacerated wound extending entirely through the cervical walls. Union by first intention is rendered impossible by the lochial discharge in which the open surfaces are constantly bathed, as well as by the unfavorable condition of the uterine tissues. Nature sets about repairing the injury by the usual processes of inflammation and granulation, processes which are entirely antagonistic to the processes of degeneration and involution which are going on in the womb at the same time. The consequence is, that neither process is perfectly performed. The wound in the cervix is not healed, but remains as a granulating surface, retarding involution and causing the womb to become permanently congested under the continuous efforts of nature to accomplish the reparative process. The result is that, when the woman regains her feet, the womb, being of more than its normal weight, on account of the retardation of involution and of its condition of congestion, sinks down into the pelvis until it rests against the posterior vaginal wall. Its weight, therefore, falls principally upon the cervix which has been lacerated bilaterally. The lips of the cervix are forced apart by the superincumbent pressure, and the womb finally comes to rest upon the inner surfaces of the everted lips. These surfaces being covered with cylindrical epithelium instead of the squamous variety which covers the exterior of the cervix, are unfitted to sustain the constant pressure and friction to which they are now exposed, and become the seat of ulcerations which add to the already existing congestion of the organ. It is easily to be understood why laceration must extend beyond the crown of the cervix in order to lead to the evil results just described. If the rent extend only partially through the cervical walls, stopping short of the crown of the cervix, the portion of the cervical wall remaining intact serves to keep the torn surfaces in apposition and thus prevents the lips from becoming everted when the patient leaves her bed. As soon, therefore, as involution has progressed to such a point as to allow the reparative process to go on, the parts being in apposition and free from any irritating friction or pressure, readily heal by granulation. In the majority of cases of subinvolution an anteflexion of the uterus is found. According to Schroeder[1] anteflexion is the normal condition of the womb in the first few days after confinement, and gradually disappears as involution progresses. But if by any of the causes referred to above the womb is rendered unable to return to its original size, its abnormal weight prevents the fundus from rising to its proper position as it would if involution pursued its natural course. It may be remarked, however, that a permanent anteflexion under such circumstances is not the invariable rule.

Having considered the pathology of laceration of the cervix, we are prepared to answer in brief the question, Why does not the cervix, lacerated in labor, heal of itself? The answer is twofold:

1. Because the womb is in a state of fatty degeneration, a state absolutely antagonistic to the process of healing and repair. The tendency of all degenerated tissue is toward disorganization and destruction, and the tissues of the post-parturient uterus form no exception to this rule. We might as reasonably expect to establish the process of repair in tissues

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[1] Opus cit., p. 101.

undergoing tuberculous or carcinomatous degeneration as in the uterine tissues when involved in fatty degeneration.

2. Because, by the time the process of degeneration has abated to such an extent that under favorable circumstances the rent in the cervix might heal, the patient has left her bed and is upon her feet again, so that the womb, as I have already said, is pressed downward into the pelvic cavity by its abnormal weight until it rests upon the posterior vaginal wall. The divided lips are thereby forced apart and their inner everted surfaces exposed to friction and pressure which they are not by nature fitted to bear. If the womb were not in a state of fatty degeneration during the time that the lacerated surfaces are kept in apposition by the patient's remaining in bed, it is quite certain that the wound would heal readily. Or, on the other hand, if the lacerated surfaces could be kept in apposition after the woman leaves her bed and when the process of degeneration has in a measure subsided, it is not improbable that the wound would heal. But before one obstacle to healing is removed, the other is brought into action and the result is a chronic pathological condition.

The indications for treatment in such cases are obvious. Yet, obvious as they are, it is only within a few years that they have been recognized and applied, and multitudes of physicians to-day are attempting to cure with pessaries and caustics cases which need only the sewing up of parturient lacerations. As soon as the process of involution has proceeded as far as it can proceed in a womb whose cervix is lacerated, that is, in from four to six months after the laceration has occurred, the surfaces may be denuded and brought together with wire sutures. If the operation be properly done and the patient be kept in bed for a sufficient length of time, a most satisfactory result may be confidently anticipated.

I shall now proceed to consider surgical division of the cervix uteri for the relief of mechanical dysmenorrhea, not attempting to treat of it fully in all its relations, but only as far as is necessary to carry out the purpose of this paper. In a simple uncomplicated case of mechanical dysmenorrhea the womb, if examined in the intervals of menstruation, will be found to be in every respect in a normal state, as far as the condition of its various tissues is concerned. The patient considers herself well, and indeed is well, except during the first two or three days of each period when the womb is endeavoring by forcible and painful contraction to expel the menstrual blood. If in such a womb a laceration of the cervix could occur similar to that which occurs in labor, there cannot be the least doubt that the wound would immediately heal by first intention. The two great obstacles to such a result which exist in the post-parturient uterus, namely, a degenerated state of the tissues and forcible separation of the divided lips, are both absent. The operation of division of the cervix consists in making a clean cut through the cervical walls as far as the vaginal junction, and the continuance of the incision through the internal os by cutting through only a portion of the cervical wall. If the surgeon should stop at this point and allow nature to take her course, in three weeks not a trace of the incision would be found. This statement is not a mere supposition, for I had an opportunity to prove it by observation. A patient upon whom I performed division of the cervix, cutting entirely through the cervical wall to the vaginal junction on each side, left her bed the next day contrary to my directions, and stood with bare feet upon the uncarpeted floor of a cold room. An acute attack of pelvic cellulitis followed. The dressings were all removed from the cervix and not replaced. The cellulitis was cured and at the end of three weeks an examination was made. Not a trace of the incision was visible and not even a cicatrix to mark its site. Emmet,[1] the most formidable opponent of the operation, says: "Fortunately the ingenuity of man has not yet been able to devise any means by which the divided surfaces could be kept from uniting, so far, that we seldom have after the operation the tissues rolling out to the same extent as when laceration has occurred. Nor are the parts in the same favorable condition to admit of this gaping as after childbirth when the flaps flatten and roll out readily." Indeed the most strenuous efforts of the surgeon are necessary, by means of tents and by packing the incision with lint, to prevent the wound from uniting to such an extent as to destroy the success of the operation. I have performed incision of the cervix for the relief of mechanical dysmenorrhea ten times within the past five years. In every case except one the incision has extended through the cervical walls as far as the vaginal junction. In every case I have used my utmost endeavors to prevent the opposing surfaces from uniting. Yet in no case after the wound has healed has the incision been found to extend beyond the crown of the cervix. Under such circumstances eversion and the development of the symptoms which result from parturient laceration are manifestly impossible.

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[1] AMER. JOUR. OF OBSTETRICS, NOV., 1874.

I consider the theory that such a result may follow incision of the cervix as the result of *a priori* reasoning alone, and entirely without foundation in clinical experience. I am confirmed in this opinion by the fact that in all the gynecological literature at my disposal I have been unable to find any record of a single case in which such a result followed. Tilt[1] does indeed speak of two patients upon whom incision of the cervix was performed and who afterwards suffered from uterine disease. But he does not state what form of uterine disease, nor does he give any details which would connect the affection with the previous operation. It is not, of course, claimed that the operation will grant immunity from all forms of subsequent uterine disease. Indeed a woman may to-day be cured of mechanical dysmenorrhea by incision of the cervix, become pregnant afterwards, suffer laceration of the cervix in her confinement, and six months later have her cervix sewed up by the same surgeon who had previously divided it. There would be no more inconsistency in such a course than there would be in giving to a patient at one time astringents to check a diarrhea, and at another time cathartics to relieve constipation.

That the operation of incision of the cervix for the relief of mechanical dysmenorrhea is curative in its effect I can confidently assert from my own experience. Of the ten cases in which I have operated, in only one did I fail to obtain a satisfactory result, and in that case the failure was wholly due to the imprudence of the patient. A certain class of gynecologists have made it the fashion to decry the operation and to create a prejudice against it by uncalled-for ridicule and charges of inconsistency. Consequently there are to-day a multitude of women who are obliged to endure excruciating pain every four weeks, and who are not enabled to avail themselves of the easy means of ridding themselves of their suffering. I believe that any practitioner, who will make a careful selection of proper cases, operate with judgment and care, and form a candid opinion from the results thus obtained, will become as fully convinced as I am that the operation is one of the most satisfactory both to patient and physician that we are ever called upon to perform.

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[1] Handbook of Uterine Therapeutics, New York, 1869, p. 284.

The points which I have attempted to elucidate in this paper may be briefly summed up as follows:

I. Parturient laceration of the cervix occurs in a womb whose tissues are in a state of fatty degeneration and therefore have no tendency to heal.

Division of the cervix is performed upon a womb whose tissues are in a perfectly normal state with an almost insuperable tendency to heal.

II. Parturient laceration interferes with a physiological function of the womb, namely, the process of involution.

Division of the cervix interferes with no function of the womb, but on the contrary facilitates the performance of one of its most important functions.

III. Parturient laceration occurs at a time when the weight of the womb is so great as to force the divided lips apart by pressure against the posterior vaginal wall and so to prevent healing.

Division of the cervix is performed while the womb is of its usual weight, and therefore the divided surfaces remain in apposition and will heal as far as they are allowed to by the physician.

IV. Clinical experience shows that parturient laceration is productive of a long train of distressing symptoms.

Clinical experience shows that division of the cervix produces no injurious effects if properly done, but, on the contrary, completely and permanently relieves a very painful and persistent disease.

In a paper read before the Rhode Island Medical Society[1] in December, 1879, I gave the details of six cases in which I had performed division of the cervix. I now give abstracts of these cases together with a brief report of four more which have come under my treatment since that time.

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[1] Trans. of Rhode Island Med. Society, Vol. II., p. 77.

CASE I.—M. G., aged 32, married seven years; sterile; dysmenorrhea since the third menstrual epoch; vomiting and severe uterine colic. The blood escapes in clots. In the intervals, slight leucorrhea. Examination showed a cervix conoid and one and three-eighths inches in length. The external os was so small as to scarcely admit a Sims' probe. July 28th, 1875, five days after the cessation of the menses, patient was etherized and bilateral incision performed. Menstruation occurred eighteen days after the operation, and was free from clots and almost entirely painless, and has continued so ever since. Fourteen months later patient became pregnant.

CASE II.—R. N., aged 28, married five years; sterile; dysmenorrhea since marriage. Examination revealed a conoid cervix one and five-eighths inches in length. The cervical canal was of normal size. December 30th, 1875, six days after the cessation of the menses, patient was etherized, and one-half an inch of the anterior and posterior lip amputated. Menstruation occurred on the sixteenth day and was absolutely painless and has continued so ever since. Patient has not become pregnant.

CASE III.—E. M., aged 20, single; dysmenorrhea since puberty. Examination showed the cervix to be one and two-thirds inches in length with an os too small to admit a Sims' probe. The cervix was flexed upon itself at an acute angle, so that the os pointed directly forward and rested against the anterior vaginal wall. January 25th, 1876, five days after the cessation of the menses, patient was etherized and an incision made in the median line of the posterior lip, cutting completely through all the tissues to a point above the angle of flexion. Patient menstruated without pain eighteen days after the operation, and since that time has had no return of the dysmenorrhea.

CASE IV.—H. L., aged 34, married five years; sterile; dysmenorrhea since puberty. Examination showed an os very small, requiring some force to introduce a Sims' probe. December 10th, 1876, bilateral incision was performed. Patient did well until the third day, when peritonitis supervened. Inquiry elicited the fact that on the second day patient got out of bed with bare feet upon the cold floor of an uncarpeted room. The dressing was removed at once and not returned. The peritonitis was checked in five days and patient recovered. She refused to submit to any further reatment and now remains in the same condition as before the operation.

CASE V.—M. H., aged 28; married four years; sterile; dysmenorrhea since puberty. Examination showed an external os so small that a Sims' probe could not be introduced. November 7th, 1877, five days after the cessation of the menses, patient was etherized and bilateral incision performed. She menstruated eighteen days after the operation, but with very slight pain. Since that time there has been no return of the dysmenorrhea. She has not become pregnant.

CASE VI.—A. G., aged 34; single. This patient applied to me to obtain relief from an intense itching of the vulva and perineum which had troubled her for years, but had increased of late until it was almost unendurable. Examination showed hyperemia of the parts and marks of the nails from scratching, but no other lesion of the skin and no parasites to account for the itching. Inquiry elicited the fact that ever since puberty she had suffered intensely from dysmenorrhea. A uterine examination revealed an abnormally small os and a sharp angle in the lower half of the cervix, so that the os pointed directly forward towards the bladder. As the menses were due in two days, I introduced a laminaria lent into the cervical canal and left it in for eight hours. At the end of that time the itching had entirely ceased and menstruation proceeded without the usual amount of pain. Recognizing the fact that the relief obtained was only temporary, I proposed an operation for a permanent cure. December 26th, 1877, five days after the cessation of the menses, patient was etherized and the posterior lip of the cervix was divided in the median line up to the vaginal junction, and the anterior wall of the cervix at the point of flexure was incised to the depth of about a quarter of an inch. Since that time patient has menstruated with only a moderate amount of pain, not sufficient to keep her from her work or require the use of anodynes. The itching did not return.

CASE VII.[1]—M. M., aged 27, married four years; sterile. Has suffered from dysmenorrhea since puberty. At every menstrual period is obliged to go to bed for two days. The pain commences a few hours before the flow appears and lasts two or three days. The blood escapes in clots. Examination showed a womb normal in every respect with the exception of a marked stenosis of the cervical canal. January 23d, 1880, five days after the cessation of the menses, bilateral incision was performed. Since that time patient has suffered but a very slight amount of pain at each period. She has not become pregnant.

CASE VIII.—K. M., aged 31, married three years; sterile. Dysmenorrhea since puberty; unable to attend to her household duties during the first two days of each period. Blood escapes in clots. Examination showed a womb normal in every respect except stenosis of the external os and a slight anteflexion. February 8th, 1880, five days after the cessation of the menses, the patient came to my office in her carriage, and bilateral incision of the external os was performed, cutting only as far as the crown of the cervix on each side. The result was complete relief of the dysmenorrhea. She still remains sterile.

CASE IX.—M. H., aged 37, married eleven years; sterile. Severe dysmenorrhea since puberty, with the usual symptoms. Some anteflexion, but womb in other respects normal except stenosis of the cervical canal. March 10th, 1880, five days after the cessation of the menses, bilateral incision was performed. The result was complete cure of the dysmenorrhea. I saw the patient ten months afterwards and she said that since the operation "she never should know when she was unwell if she did not see the blood." She has not become pregnant.

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[1] Numbering continued from paper referred to above.

Case X.—E. B., aged 24, married two years; sterile. Has suffered from dysmenorrhea since puberty, with so much pain at each period that she has been obliged to resort to large doses of morphine to enable her to endure it. Womb normal except stenosis of the cervical canal. December 14th, 1880, five days after the cessation of the menses, bilateral incision was performed. The patient has menstruated three times since with scarcely an appreciable amount of pain.

A CASE OF CONGENITAL ATRESIA OF THE VAGINA,

OPERATED UPON BY MAKING FREE INCISION THROUGH THE HYMEN, EVACUATING RETAINED MENSTRUAL FLUID, AND WASHING OUT VAGINA AND UTERUS.

BY

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Atresia of the vagina, whether congenital or accidental, is uncommon and a *rara avis* in the practice of physicians generally, in the course of an ordinary life practice. The case mentioned in the subjoined report was extraordinary, of extreme gravity, and of great interest.

Although it terminated disastrously, I have thought it best to submit the case to the perusal of the profession, believing that the practical facts resulting from the experience it afforded are of considerable importance, not only with reference to the operation to relieve such cases, but also to our future conduct in all cases of similar character.

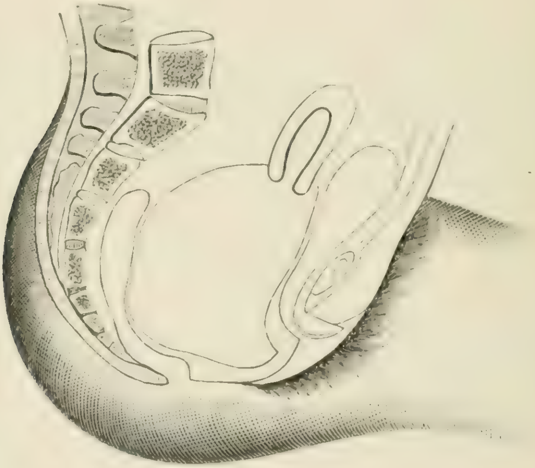
In this instance the case was what is termed imperforate hymen; the uterus, the ovaries, and the vagina were normally developed, with the exception, I may add, if it is an exception, of the development of the hymen. The uterus and ovaries exercised their functual activity or duty, although no doubt in a manner modified by nature attempting to accommodate herself to the circumstances resulting from the unsurmountable barrier obstructing the vaginal orifice. The hymen was about three-eighths of an inch thick.

On January 6th, 1881, I received a telegram from Dr. T. M. Jackson, of Hadley, Pa., to visit a patient of his, Miss Clara D——, aged 16, who resided in that place. I saw her the same day, in the afternoon.

The history of the case, as I was able to collect it from the patient, the mother, and the doctor, was substantially as follows: She had never menstruated. For over two years and a half she had been in delicate health; at certain regular periods she would be attacked with pain in the back, pain in the abdomen, and pelvic cavity, headache and other ordinary rational symptoms prodromus of the beginning of the menstrual flux in young girls. These attacks, or spells as she called them, were always followed by considerable debility and general prostration. The last year these periodical attacks had been growing more severe, and particularly during the last six months; of late a sense of fulness and distress low in the bowels was continually present, and the constitutional disturbance very marked. She had trouble in voiding her urine, at times being unable to pass it readily, and followed by pains in the neck of the bladder and along the course of the urethra. The last of these attacks had been more than ordinarily severe, although at the time of my first visit she had no severe pain, and was quite comfortable but debilitated—this was several days after the pain had ceased. Upon examining her carefully, I found the following physical conditions existing.

Placing the hand upon the hypogastric region I found a considerable tumor swelling up above the pubes, and distinctly circumscribed. It was quite firm and immovable and pressure caused distress; to the right of the median line, below the umbilicus and apparently on the right side of the tumor, and distinct from it could be felt a firm hard body very tender to the touch. The catheter revealed the fact that the bladder was empty, and it was with no little trouble I could pass the instrument, as it seemed that the urethra was stretched unusually long and carried out of the natural course. Passing the hand down between the labia I found the vaginal opening completely closed by a thick, impermeable membrane or hypertrophied hymen. It was tense upon pressure and gave the impression that the contents of the vagina back of it were fluid. The labia majora were small, and the labia minora almost deficient. This obstructing membrane was bulged out, convex on its outer surface, almost even with the labia, which were separated or gaping. Upon introducing the finger into the rectum I found the entire pelvic cavity occupied by the tumor. There was no doubt that a large fluctuating tumor existed, which gave the physical signs of being filled with a thick-fluid or jelly-like substance. The complexion was colorless, and anemia seemed stamped upon every feature. She was moderately well developed, limbs pretty full, breasts moderately full, and body round. The temperature was normal, pulse quick and weak, but not inflammatory; the skin natural.

Dr. Jackson had been called a few days preceding my visit on the occasion of her last periodical attack, and finding her in distress in the lower part of the abdomen, unable to pass urine, and a fulness in the hypogastric region, naturally suspected retention of the urine, and passed the catheter and drew off three pints of urine. This gave her great relief, but did not perceptibly lessen the size of the enlargement in the hypogastrium. When passing the catheter he discovered that the vagina was permanently sealed, and upon communicating the fact to the young lady and her mother, he was greatly surprised to learn that the condition was not before known to the patient herself nor her mother nor had it even been suspected.



A careful review of all the facts learned from the history of the case and from a through physical examination admitted of but one conclusion, and that was that the case was one of retained menstrual blood caused by imperforate hymen, and that menstruation had been going on regularly and the blood accumulating within the vagina and womb for over two years until the vagina was unprecedentedly distended. The main tumor was made by the engorged and dilated vagina, and the hard and tender body on the right side of the median line was the womb filled with menstrual blood and enlarged to near three times its normal size. The vaginal tumor filled the entire pelvic cavity, and crowded the bladder, womb, and ovaries up above the pubes. Such was our diagnosis.

The prognosis of the case was unfavorable; it was evident that her only hope of recovery lay in an operation for the opening of the membranous hymen and evacuating the retained menstrual blood. The clearly developed evidence she showed of blood-poisoning and constitutional debility spoke in plain language for an unfavorable termination even after operation. The case had gone on undiscovered until the utmost limits of endurance had been reached before a physician had been called, and the ravages of the disease were evidently beyond hope of recovery. Both the patient and her mother were made acquainted with our opinion of the case, and doubts plainly expressed as to a favorable result from an operation. An operation was requested, and on the next day at three o'clock P.M. she was placed upon the table and an anesthetic (Squibbs' ether) administered. I will state here that no symptoms or signs of inflammation of the womb or of inflammation of the pelvic tissues or of the peritoneum could be discovered.

It was decided to operate by puncturing the hymen with a straight bistoury, make a small opening and let the fluid escape gradually, and from time to time keep it open until all had been discharged, and avoiding, if possible, the entrance of air into the vagina through the cut. As soon as the patient was fully under the influence of the ether, I passed the knife through the centre of the hymen. Upon withdrawing it, no blood escaped, but I could see pressed against the inner side of the cut the surface of a dark, thick-liquid substance; I enlarged the opening to about half an inch and found it would not flow, owing to its being too thick. I then introduced a large-sized canula, but found it would not discharge through it. I then determined to follow the advice of Emmet, make a free incision, turn out all the retained fluid at once and thoroughly wash out the vagina and uterus with warm carbolized water. I did so. The free incision permitted thirty-two (32) fluid ounces of retained fluid to escape. In physical character it was a thick, tar-like substance, more red than black. Quite a quantity of membranous substance was discharged, which seemed to me to have been cast off after nearly all of the menstrual fluid had been turned out. The hymen was nearly one-half inch in thickness, membranous and very tough. The cavity of the vagina was large, and at first no trace of the uterus could be found by the finger. The hand upon the abdomen located the hard body to the right of the middle line, gradually it disappeared and soon it could be touched by the finger in the vagina; it was the uterus. To the touch it felt soft, and conveyed to the finger the same impression as would be experienced by touching a piece of fresh liver. There was no cervix; the whole organ seemed like a round mass.

After thoroughly washing out both vagina and uterus, a suitable T-bandage with a pad over the vulva and a compress over the bowels were applied. She rallied nicely from the effects of the operation and the ether, was given an opiate and put to bed. Dr. Jackson saw her in the evening and found her resting well, gave her another opiate to carry her through the night.

On the morning of the second day, she was feeling better and seemed quite well. Temperature was normal, pulse very natural. She ate some soup, and drank some milk with quite a relish for it. The vagina was washed out with warm carbolized water by a Davidson's syringe. On the evening of the second day her condition was about the same, perhaps feeling somewhat better ; no pain and resting easy. Used vaginal wash.

Third day, 9 A.M.—Rested well during the night and took nourishment freely, and feels bright and cheerful ; washed out the vagina, and gave opiate to be repeated three times a day.

Third day, at 12 A.M.—Patient complained of slight headache, pulse accelerated, and temperature 100°. Dr. Jackson, fearing inflammation, gave her morphia at repeated intervals and five-grain doses of sulphate of quinine.

Third day, at 3 P.M.—He was called in haste and found the patient had had a chill that lasted about half an hour, followed by fever, pain and tenderness, and enlargement of the womb. Pulse 110, temperature 103°. He gave quinine in five-grain doses every three hours, one-sixth grain pill sulphate of morphia every two hours to relieve pain, and applied large hot flaxseed-meal poultices over the entire abdomen and had them changed every thirty minutes. The vagina was washed out in the evening with hot water, as hot as she could bear. Evidently inflammation had set in.

From this time on until her death on the 8th day, the symptoms of septic metritis and peritonitis became more and more pronounced, and yielded to none of the usual remedies. The pulse ran up to 150, the temperature to 104°; the patient became delirious, and died comatose.

Before operating on this case, I consulted the works of a number of the most eminent authors on gynecology, and carefully read their opinions upon the subject, as I had no experience in the operation and had to be governed by those who had.

Hewitt advocates making a small opening and allowing the retained fluid to escape gradually, taking care to prevent air from entering into the vagina through the cut. He says, "the fluid should be evacuated *guttatim*. If the opening become closed, a second and similar opening to be made the following day, or two or three days later, and a firm but gentle support given to the abdomen by the aid of a bandage and carefully adjusted pad during the whole period of the evacuation of the fluid." Should air chance to enter, he says it is best to make a free opening.

Thomas is not positive and gives no decided opinion as to the course best to pursue, and cites the opinions of Amussat, Dupuytren, Bernutz, Hewitt, Emmet, and others.

Emmet, on the other hand, takes a positive stand and pronounces unhesitatingly in favor of making a free opening and turning out all the retained fluid at once and washing out thoroughly the vagina and uterus with warm carbolized water. He says, "I divide the hymen with a sharp-pointed bistoury and then freely enlarge the incision with my index finger. As soon as the collection had escaped, I washed out the vagina and the partially dilated uterus thoroughly with warm water by means of a Davidson's syringe. A small glass vaginal plug was then introduced and removed night and morning for the purpose of having the vagina syringed out. These cases received no other treatment, except to be kept quiet in bed seven or eight days, and they all recovered without the slightest disturbance. But for the fact that cases have been placed on record where death has resulted from this simple operation I should have regarded the procedure as being worthy of little more than a passing recognition."

I quote Hewitt and Emmet in their own language to present in contrast the difference in opinion of two of our most eminent and modern gynecologists upon this important subject.

The orthodox plan of treatment seems to be the one advocated by Hewitt, and introduced by Bernutz. In my case I was inclined to favor this method, but after commencing the operation I was able to see that its principles could not be practically carried out, and abandoned it and operated as taught by Emmet. Most certainly it was not a favorable case for operation. No difference what plan had been carried out, I believe the case was hopelessly doomed, and that the disaster would have resulted all the same. Such is my opinion.

The after-treatment was that recommended by the most distinguished practitioners, opiates, quinine, hot flaxseed poultices, brandy, etc., and the free use of hot water vaginal injections.

In conclusion, notwithstanding the unfavorable termination of the case, I must say that, if I should again be called upon to treat another case I would open the hymen freely, and wash out the vagina and uterus at once, provided the amount of imprisoned fluid was not great or anything near like as much as in my case. In case the amount of fluid was great, I would, from the experience I have now had, favor gradual evacuation and select the recto-vaginal septum as the point where to operate. The fluid could be gradually drawn off through this channel, and the sphincter ani utilized as a valve to exclude the admission of air. In my opinion, in this way the dangers resulting from sudden withdrawal of the fluid would certainly be avoided, and most probably air could be prevented from entering the vagina and thereby decomposition of the menstrual blood *in situ* prevented.

THE PRACTICE OF OBSTETRICS AMONG THE CHINESE.

BY
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In perhaps no one branch of medical practice do the Chinese physicians show a greater amount of consummate ignorance than in that of midwifery. Their whole system of medication is absurd; but apart from this, their most approved treatment of difficult labor cases is founded upon an entire misconception of the anatomy of the pelvic organs, of the pelvis, and the mechanism of labor. My attention has been called particularly to this subject of late by reading a translation by Dr. John G. Kerr, of Canton, of a Chinese treatise on obstetrics, entitled, *The Tat Shang Pin*, or Midwifery made easy, belonging to the Lewis Library, of the College of Physicians. Who was the writer, or when he wrote the book, is not now known; but it is believed to be several centuries old. As it is regarded as a standard authority in China, and is gratuitously distributed for the enlightenment of the poor, it merits our attention as an exponent of the teaching and practice of Chinese obstetricians in simple as well as difficult labors. Dr. Kerr says: "it is the standard authority in all difficult cases," and we are therefore correct in making it the basis of an investigation into the practice of obstetrics in the Flowery Kingdom. The book abounds in the weakest sophistical arguments; presents the most improbable and impossible cases; and evinces the greatest ignorance of the facts of gestation, the mechanism of labor, and the causes of difficulty in the delivery of the fetus and secundines. The end and aim of the author appears to be to establish the idea, that all labors would be simple and normal if the women would rest, sleep, remain perfectly quiet and passive, and make no effort, except in exceptional instances, at the last of the second stage of labor, to aid the passage of the fetus by bearing down.

To better comprehend the follies of Chinese obstetrics let us examine the peculiar medical opinions and beliefs of these Orientals, and the foundation upon which their ideas are based. As they never dissect a human body, or make an autopsy, they are entirely ignorant of our anatomy; but not being wise enough to conceal their ignorance, they attempt to construct an ideal representation of our internal organs and their relations, thus making themselves ridiculous to all persons not of their own nation. It never appears to have entered the brain of a Chinese doctor that we bear a resemblance in the form and arrangements of our viscera to the lower animals, such as they are in the habit of slaughtering. But as man is a superior being to the brute creation, they give him an ideal anatomy and a set of organs unlike anything in nature. Thus his lungs are said to have six lobes; to be attached to the third cervical vertebra and to contain the animal soul. The trachea is said to be two inches in diameter and fourteen inches long. A representation of their conception, in a work on anatomy, makes the trachea and lungs look like an inverted plant, with large united leaves like a corolla in form. The liver is portrayed as having seven lobes, and is said to cause the eyes to move, etc. The heart is said to have seven apertures and to regulate the intelligence; the pericardium envelops it, so as to protect it from poisonous vapors.

To the Chinese anatomist the uses of the organs are unknown, and he has no conception of the circulation of the blood or of the oxygenating and de-carbonizing functions of the lungs. He presumes the arteries to contain air, and believes that the pulse in each wrist has different visceral connections. When he wishes to make a diagnosis he relies on the pulse alone, to determine what organ is affected, and its condition. The pulse is felt at the wrist, just above it, and again a little higher up, first in one arm and then in the other. Thus disease of the heart is discovered by the pulse at the left wrist, and of the liver above the wrist. Diseases of the lungs are determined by the pulse at the right wrist; kidneys, by feeling higher up; and of the stomach, at a point still higher.

In the idea of the Chinese the constituent elements of the body consist of vital heat (*yang*), and of radical moisture (*yin*), which reside in the blood and vital spirits, their union constituting life, and disunion, death. The vital heat exists in the membranous viscera, and the radical moisture in the lungs, heart, liver, spleen and kidneys. The small intestines are said to have sixteen convolutions and to be in harmony with the heart; the gall-bladder with the liver, the large intestines with the lungs, etc. The vital heat and radical moisture must be in equilibrium with the five simple elements, *earth*, *fire*, *metal*, *water*, and *wood*, each of which is presided over by a different deity. These elements must act in harmony to constitute health and maintain a proper proportion in relation to each other; any ascendency of proportion in either deranges the system, and we have disease, evinced by an excess of heat, cold, moisture, etc. The object of medicine is to restore this equilibrium and thus cure the disease.

The Chinese worship their ancestors; have a great veneration for old things; a high respect for old people; and a wonderful faith in what is taught in the books of their *ancient sages*. Their whole system of medicine is interwoven with their religious and so-called philosophical ideas, and has no anatomical, physiological, or pathological basis. The medical literature of the Chinese is contained in thousands of volumes, some of them many centuries old; and these are filled with the most ridiculous ideas that have ever emanated from the human brain; and with formulæ, which, if not disgusting in character, surprise us by their utter want of adaptation, and, notwithstanding this, their long standing reputation. One of the most highly commended in the *Tat Shang Pin* is a pill compounded of rat kidneys and rabbit's brains, of which the author asks this question, "is there anything better of all the ancient formulæ?"

The Tartar-Chinese, the descendants of the Tartarian conquerors of China, although introducing the now national custom of wearing the queue, have not in turn been influenced to adopt the pernicious fashion of foot-binding from the Chinese, or their peculiar medical ideas and practices. In a medical sense, the Tartars are vegetarians, and their physicians are all Lama priests, who collect and prepare their own herbs and teach to their young successors the secrets of their calling as part of their training for the priesthood. Tartar physicians both bleed and cup, using a horn for the latter and exhausting it with the mouth, closing the vent with a ball of chewed paper pressed in with the tongue; but in a proper knowledge of medicine as a science they are but little in advance of the true Chinese, by whom medicine, religion, necromancy, and speculative philosophy are blended together in dealing with disease and deceiving the patient into a blind faith in their skill and power to cure.

Having thus examined the speculative theories of the Chinese physician, and his opportunities for obtaining a knowledge of human anatomy, physiology, and pathology, we are the better prepared for his teachings in obstetrics, as based upon his imaginative views of gestation and parturition. Never having opened the abdomen of a woman, or examined the form of her pelvis, he is entirely at sea upon the question of the muscular action of the uterus, and the manner in which the fetus, as a passive body, is forced through the pelvis and the vulvar outlet. Taking his belief from what he sees in nature, he conceives the idea that the woman, like the egg, is passive, or should be, and that the fetus, like the chick in ovo, is capable, if not interfered with, of making its own exit. In the specious language of the *Tat Shang Pin*, "the melon when ripe falls of itself." "The production of other things is not difficult: when the time comes for buds to spring forth, and the eggs of ducks and chickens to hatch, are men required to force them out? It is self-evident that they are not."

In China all ordinary obstetric cases are in the hands of midwives, and the physician is rarely summoned unless there is some delay or difficulty. In the opinion of Chinese physicians of the non-interference school the midwives as a set are ignorant and officious; too ready to use their hands and too urgent in appeals to the woman to bear down. When labor is much prolonged they will attempt desperate measures, such as cutting off a protruding arm, or breaking in a fetal head when impacted in the lower pelvis. But having done this amount of mutilation their ability to deliver ceases, for want of the requisite instruments and the knowlege to use them. Chinese women have a great antipathy to male attention when in labor, and will avoid it whenever possible. If of the better class, their modesty, pride of wealth, and national repugnance to foreigners, will be brought to bear against an American or European accoucheur until perhaps too late for his skill to save them.

The woman to be delivered is seated over a tub, and in hot weather with little or no clothing upon her. The Chinese term for midwife means in English *a birth receiver*, and indicates the passive nature of her occupation, which is to catch the child as it is extruded over the tub, separate it, and place it on the bed. To restrain the activity of the midwife, and to educate the people in the belief that she is not to aid in any manner the delivery of the fetus, appears to be in large measure the mission of the book referred to.

The Chinese belief that the woman should be passive and not bear down until the head is distending the perineum, is based upon an ancient hypothesis, that the fetus is seated in utero during the whole period of gestation and does not change to the reverse position until the full time of pregnancy is completed, when it turns voluntarily in preparing to make its exit head first by its own muscular forces. Believing that the child is its own deliverer, the Chinese physician, as taught by the standard authority, directs that the woman shall not bear down for fear of interfering with the turning of the child, but shall lie on her back to relax her abdomen that the fetus may the more easily accomplish its tergiversation. Podalic deliveries are attributed to the woman having borne down before the child had commenced to turn; and presentations of the arm, shoulder, and side of the head, with cross positions in general, to bearing down during the stages in turning.

The *Golden Mirror*, a work compiled by the order of the Emperor *Chien Lung*, directs that women should not during pregnancy eat turtles, chickens, or ducks, for fear that their offspring may be born deaf and dumb; and that they should not eat rabbits, for fear of the production of hare-lip. Another work says, they are not to witness the execution of criminals, or the slaughtering of animals (which are wise directions); and are also not to see a house repaired, the first breaking of the soil, terrapins, or white rabbits; the reasons for which are not so well established.

False and true pains.—The slow tedious pains often met with in the first stage of labor are considered *false*, and the severe ones at short intervals *true*, and are said to be "*ripe.*" Rest, sleep, fortitude, and self-control against the inclination to bear down are enjoined. As it is impossible to maintain an inactive state of the diaphragm and abdominal muscles, when the fetal head is resting on the perineum, the woman is allowed to bear down when the child has come to the outlet. The proper time is thus defined. "When all the joints are loosened and the breasts relaxed; when the back and abdomen have changed; when there is urgent tenesmus, and the eyes see stars flashing before them, then it may be known that the time has truly come; just then let her bear down a moment and the birth will be completed."—*Opus cit.*

Death of the Fetus in utero.—As a curiosity in diagnosis the Chinese method of determining the condition of the fetus in utero is worthy of attention. "When the mother's face is red and the tongue green, the child is dead. If the face is green and the tongue red, the child is alive, but the mother will die. When the face and tongue are both green, the mother and child will die together." This is all Chinese to us. Either the chromogenetic effect of disease upon the Mongolian skin must be different from that on the Anglo-Saxon and other white races, or the Chinese eye for color is not in correspondence with our own.

Threatened miscarriage.—Chinese obstetrical writers do not hesitate to report very fabulous cases when such are required to enforce an opinion, as witness Case 1 in the experiences of the author of "Midwifery made easy." The wife of *Po Wa*, the third son of the Mandarin *Fok Shan*, a young and robust woman, was always confined at the eighth month; suffered excruciating pain for several days after delivery and lost her children when a year old. She was again in labor at the same period of gestation, and had been for three days when I was hastily summoned and found her gasping for breath. "*On* *examining the pulse I discovered that it was still in connection with the viscera.*" The midwife reported that it could not be born. I caused her to lie down quietly and gave her some anodyne medicine; in the morning the head could not be felt and she was entirely relieved. "One hundred and twenty days after this, or at the end of twelve full months, she gave birth to a son," who is now eight years old. This claim of prolonged gestation is not more remarkable than some that have appeared in old European medical books; and we account for it by saying that either the case never occurred, or the attack was at five months, and the midwife entirely in error as to the advance and recedence of the head.

As the Chinese physicians affirm that "it is not necessary to know what is in man to know how to treat his diseases," and have arranged their medical conjectures to meet their ignorance of anatomy, they do not feel called upon to determine the presentation of the fetus, or to either aid in rectifying it, or in bringing it into the world. Where the midwife fails, and nature is incompetent to deliver, the case is usually beyond the devices of their accoucheurs.

The wonderful credulity of the Chinese, and their faith in the volition and power of the fetus in making his own exit, is shown by the following in an obstetrical treatise. "The ancients (sages) record cases where the birth was delayed three or four years; but this was because of the child's unwillingness to be born. If it is unwilling to come out, who is able to force it; and if it will come, who can hinder it?" The sages may possibly have honestly reported some cases of *missed labor;* but the error lies in the inference that fetal life had been prolonged as well as the period of gestation. Having made the fetus in theory his own deliverer the Chinese physician is compelled to explain a missed labor in this ridiculous way.

Retained Placenta.—This is very singularly accounted for. It does not appear to be recognized that it is possible for it to adhere to the uterus, or be shut in by spasmodic action; no, the fault is in the labor having been forced before the joints were prepared for the passage of the child. The idea is this, "during labor the joints are forced apart; in strong persons they close up in a few days, but in weak ones a month is required; now if the delivery is forced before the joints naturally open, they will close up again suddenly, so that the afterbirth cannot come away." In case of retention it is recommended to tie the cord with a hemp thread, to which a weight is to be attached to prevent it from going back; "and in from three to five days the placenta will shrivel up and come away." The patient must not listen to the midwife, who may want to remove it with her hand. Who is the ignorant party here?

Arm Presentation.—I have already given the specious reasoning by which this is accounted for, and now come to the proposed treatment. The accoucheur directs the patient to be removed from over the tub and placed quietly in bed, to give her and the child an opportunity to rest and recover strength, so that the latter may retrace its steps and assume a proper position for making a favorable exit. Then a dose of Kami-hung Kwai decoction is to be administered, and the arm is to be returned by gentle means and the woman is to be permitted to rest for a night, "after which the birth will take place spontaneously." In proof of the efficacy of this plan of treatment the author of the *Tat Shang Pin* relates the following very improble case. (5) "There was also a woman in labor, and the arm having come down could not be returned. The midwife was about to cut it off when I, hearing of it, was moved with pity and hastened to her. After making her lie down quietly I gave her a large dose of the anodyne decoction. The arm was gradually drawn up and the next morning she was delivered. The arm was black, but in a few days it all disappeared."

When we consider that the Cesarean section has been performed in ten instances, where this form of impaction was found irremediable by our own accoucheurs, we must either admit the superiority of the Chinaman or doubt his story.

After-treatment.—The patient is to be removed to her bed, but is not to go to sleep, because it will produce exhaustion, impede the circulation of the blood and cause giddiness. She is to rest on a high pillow,[1] and lie on her side with her knees flexed, and take a cup of child's urine. During the first three days she is directed to take from three to five times a day a mixture of whiskey and boy's urine,[1] care being exercised not to drink too much of the former. To prevent stagnation of blood and to concentrate the spirits the vapor of heated vinegar is to be inhaled. For the first three days the diet is to consist of chicken soup free from grease. Pork is not to be eaten for ten days, and lard is excluded for a month, "because these things obstruct the blood-vessels so that the blood and spirits cannot circulate." Hen eggs are recommended, but are to be boiled all day; soft boiled eggs are forbidden, as causing obstructions.

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[1] The Chinese pillow is made of very thin elastic lacquered wood.

The wind is to be excluded from all sides, as the Chinese have a belief that it can invade the body by entering its pores when they are open, and is thus a source of much evil. To evacuate the cold air the doctor uses the acupuncture needle, which has long been in use in China, although surgical operation are not practised, even so much as to lance an abscess or remove a fatty tumor.

It is evident from the ignorance of the Chinese that there must be a large proportion of deaths in childbed of cases that might readily be saved by one properly understanding the relations of the uterus and pelvis, and the means of remedying the malpositions. There is, doubtless, also a large proportion of perineal ruptures.

The native obstetrical practice of China would have little interest for us other than as a curiosity, except for the fact that it is doomed to give way in time before the more enlightened and successful practice of Christian nations, introduced chiefly by American and English physician. The introduction of western medicine into China commenced with that of vaccination in 1805, and the treatment of eye affections in 1820. From the latter, step by step the work has advanced until it has embraced the whole range of medical and surgical practice; including also to a limited extent that of obstetrics; in addition to which have been established hospital schools for the training of native physicians in all the branches of medicine and surgery. We can readily imagine the effect of an anatomical education upon the mind of a Chinese student, led to examine by the light of true science the follies of their own system with its weak hypothetical basis. Demonstrate clearly the circulation of the blood, the functions of the lungs, liver, kidneys, etc., and the whole Chinese theories of spirits, wind, blood, etc., vanish. But to reach the masses with their blind faith in the foolish teachings of the past is no simple task, and will require centuries of persevering work. The last to yield to the advancement of science will be the men of wealth and influence, with whom the opposition to foreigners and everything foreign is most unmistakable. A very careful examination into the question of this opposition to foreigners, which is found to prevail in all parts of the empire, even to the Siberian border, has shown that the prejudice is entirely independent of any religious differences, and embraces not only the *outside barbarian* so denominated, but everything foreign, even to medicines. Playing upon this prejudice some years ago, a hospital was opened by subscription in Canton, and by a promise to exclude everything foreign the managers readily raised $60,000 for the purpose. They would not employ any foreign drug; nor would they have any native physian who had been educated in western medical science, either at home or in a foreign country. This prejudice is often felt even by the native who practises legitimate medicine; but life is sweet, and his superior skill is gradually producing a change through the cures effected, after the failures of his more ignorant and uneducated competitor. Surgery has no competition in China, as it does not exist in native practice, and its results are so evident to the eye that the cases cured are unmistakable proofs of superiority on the part of the physician. A natural effect of this is to produce an increasing faith in foreign medication; and must ultimately also establish a belief in the superiority of our obstetrical skill. In quite a number of instances our physicians have been called to cases of labor in extremis, and in some have been in time to save life. Where this was impossible the fact of an ability to deliver was demonstrated, which will bear fruit by established superiority of skill in later times. What is wanted in China is not so much the ability to manage severe cases of dystocia as the knowledge necessary for conducting the large proportion of labors in which a little care at the proper time may convert a prospectively difficult case into a simple and natural one.

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[1] Boy's urine is quite a favorite Chinese remedy. It is sometimes evaporated, and the residual salts given.

1. The first decided step toward establishing the fact of the superiority of our system of midwifery was taken by Drs. Kerr and Fun Wong in 1860, when they performed embryotomy for the first time in China, and saved the patient.

Dr. Kerr was called to see the wife of a teacher who had been in labor nearly two days with a face presentation, the chin to the hollow of the sacrum. He called in Dr. Wong, a graduate of the University of Edinburgh, who perforated the head, and the child was soon delivered. Dr. Wong has been in Canton since 1857, and has aided very materially in instructing the natives in the knowledge of medicine. I shall now give the records of several of Dr. Kerr's cases to show the state of the subjects whom he was called to operate upon and deliver.

2. In April, 1866, Dr. Kerr was call to see a primipara, then in labor eight days, and delivered her with the forceps in a few minutes. The child's skull had been broken in by the midwives, and there was a sudden gush of urine on the delivery; the woman died. This patient was strong and healthy; the presentation natural, and a timely action should have saved both her and the child. Her father lived next door to the Canton hospital and knew of the skill of its physicians; but his pride of wealth, the innate modesty of his daughter, and their dislike to foreigners caused them to delay until she was beyond hope.

3. On February 27th, 1867, a boat woman was brought to the hospital in labor after three days of suffering. She had given birth to one child, and a twin was now presenting with the right arm protruding. This had been pulled by the midwives until it was nearly severed, and the fetus was impacted in the pelvis. Dr. Kerr finding the fetus immovable, removed the arm, cut through the neck, removed the body and then the head. The woman barely escaped death, and was taken away in her boat before recovery.

4. On November 8th, 1870, Dr. Kerr was called to see another primipara in labor eight days, the fetal head having also been broken, as in case 2. The woman was exhausted and delirious, and the child putrid. Dr. Kerr delivered her with a crotchet, but too late to save her life.

5. On April 5th, 1874, Dr. Kerr delivered a monstrosity from a woman who had been in labor forty-eight hours. In this case the midwives had pulled away the head of the child, and almost severed its arms from its body. By opening the abdomen gas and fluid escaped and the fetus was removed. The woman recovered. The abdomen was divided into two unnatural cavities which were enormously distended with fluid.

6. On September 25th, 1875, Dr. Kerr was called to see a woman then thirty-six hours in labor, and proposed to deliver by the forceps, to which her friends objected. After they and the midwives had tried their incantations and medicines for twenty-four hours longer without avail, they sent again for Dr. Kerr, who de-

livered the now exhausted woman of a putrid fetus. She died the next morning.

These cases show the difficulties to be overcome in securing timely attention so as to save life. Dr. Flemming Carrow, of Canton, has had similar experiences to Dr. Kerr in this class of cases. Their rule has been to deliver, if possible, so as to show the superiority of their skill over that of the midwife and uneducated native, and to prove in hopeless cases what might have happened if called early. Dr. Carrow writes in one of his letters to me, "I have in all eleven assistants and twelve students, who are kept under instruction for three years and then given work in the operating room and sent out as graduates after four years. There is no doubt but that we are gradually undermining certain systems which have existed for years and giving the Chinese and this Province at least a corps of surgeons who are making themselves felt."[1]

What is most likely to revolutionize the obstetrics of China is the training of midwives and the introduction of educated female physicians. Chinese women prefer to be delivered by their own sex, and the success of a few female physicians has shown what is likely to result from their labors. Dr. Dauphin W. Osgood, of Foochow, says in his hospital report of 1876, after having witnessed the success of Miss Trask in obtaining women and children as patients, "Whatever difference of opinion may exist as to the expediency of ladies engaging in medical practice in England or America, there is no question that a lady physician has a wide field of usefulness and much hard work awaiting her in China and Japan." And the more recent success of another in Pekin has shown that even ladies of rank will submit themselves to the care of one of their own sex, which they have rarely done to foreign male physicians.

329 S. 12TH ST., PHILADELPHIA, March 30th, 1881.

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[1] Since the above went to press, I have learned by a letter from Dr. Carrow that he has removed from Canton; that Dr. Kerr is again in charge of the Medical Miss. Soc. Hospital; and that Chinese women are being educated therein as midwives.

A SUCCESSFUL CASE OF OVARIOTOMY AND HYSTEROTOMY COMBINED.

BY

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CAROLINE BAUER, an insane woman, aged forty-seven years, a native of Germany, married, was transferred from the City Insane Asylum to the Female Hospital, July 5th, 1879. Upon examination she was found to be suffering from a large tumor of the left ovary; the womb was drawn up, in front of and apparently attached to the tumor. The history showed the growth to have been rapid; the physical condition was bad, and the patient was placed on special diet, with the best tonic and hygienic treatment at command. Her strength improved, but the tumor continued to increase rapidly in size. August 8th, by aspiration four gallons of a gummous, chocolate-colored liquid was removed. Suffice to say the adhesions were evidently so great that ovariotomy was considered impracticable. From time to time the abdomen was tapped and the contents of cyst drawn out. During March, 1880, the patient rapidly became greatly emaciated, the facies ovariana very marked; she rejected most of her food and was confined to bed. It was decided that the only hope of saving life rested in an operation for the removal of the tumor. A room was specially prepared, thoroughly disinfected, the walls and wood-work cleaned and painted, and everything so arranged that no individual means for success should be overlooked. On April 25th, 1880, I operated under the spray by abdominal section. My medical assistants, Drs. Goebel, Grindon, Pharr, and Priest, were each assigned to their duties respectively. Dr. Steele took part in the administration of ether; Drs. Prewitt and Engelmann ably assisting in the immediate operation. The patient was readily put under the influence of an anesthetic, an incision was made in the line of the linea alba from one inch below the umbilicus to a point near os pubis; the wall of the cyst being brought in view, it was found to be adherent on every hand, but less so in connection with the anterior abdominal wall; the uterus was imbedded in, firmly and closely adherent to the sac; the cyst was bound down to the pelvic fasciæ. The peritoneum anterior and above showed the remnants of circumscribed inflammation. The cyst-wall was very thin, and upon the introduction of a trocar it gave way in several places; the contents of the cyst weighed sixty pounds; the cyst was bilocular and had no pedicle, being universally attached over the pelvis. An effort was made to strip the envelopes of the sac above the attached surface, notwithstanding the greatest care in the enucleation, yet it was torn. The circumstances now forced the operation for ablation of the womb. Having removed as far as possible all of the inner lining of the attached pelvic portion of the cyst, and controlling the hemorrhage, a Wells clamp was fastened, needles being passed below the clamp; the upper portion of cyst was cut off, inclusive of uterus, which was removed just above vaginal junction; the end of cut surface was about three inches in length; the abdomen cleaned as far as possible, a drainage tube placed; the abdominal incision was closed with wire sutures. The pedicle was so long that the clamp assumed a position in the wound lengthwise. Duration of operation, two hours and fifteen minutes. The after-dressing was according to Lister's method. The condition of patient was very feeble and she suffered considerably from the shock, which was severe.

April 25th.—Four hours after completion of operation, patient low, pulse feeble, body cold and clammy; she was given stimulants, with broken pieces of ice.

April 26th.—Doing well; pulse rapid and feeble; slight nausea.

April 27th.—Condition restless; respiration hurried; has vomited several times. Gave ice and used rectal injections of beef-tea and whiskey.

April 28th.—Patient is better, quiet and resting. Continued treatment.

April 29th.—Bowels have moved three times in quick succession, the evacuations are of thin consistence; she suffers no pain; stopped rectal injections; gave by the stomach ice with wine; gave morphia hypodermically.

April 30th.—No further action of bowels; she is quiet and resting well; dressed wound antiseptically; doing well; the clamp is drawn down considerably; there is but little discharge; drainage tube removed; the needles which had become incrusted under clamp were removed; the line of incision above clamp appeared closed; pedicle black, sloughing, but not detached.

May 1st.—Patient very nervous; has passed her urine in bed, which up to this time had been drawn every eight hours; she has no appetite; is quite violent and uncontrollable; gave a hypodermic of morphia, rectal injections of beef-tea, pepsine, and dilute hydrochloric acid.

May 2d.—Patient doing well; complains only of a pain about the hips.

The wound was from time to time dressed antiseptically. The patient continued doing well. The sutures were removed on the twelfth day and the clamp on the fifteenth day, leaving a deep excavated ulcerating surface. June 1st, a ligature, which had been placed in the bottom of the sac to control hemorrhage, was found at bottom of wound; after that the surface healed rapidly by granulation, and the patient made a full recovery. The record of temperature, pulse and respiration, as made morning and evening for thirty days following performance of operation shows that the temperature varied between 97 and 100°; the pulse between 99 and 125 during the first ten days; between 90 and 108 during the remaining twenty days; the respiration between 48 and 20 during the first ten days, and between 40 and 19 during the remaining thirty days.

May 7th, 1881.—Patient now an inmate of City Insane Asylum, is in perfect physical health, has grown quite fleshy.

HYDROCELE IN THE FEMALE.

BY

WILLIAM C. WILE, M.D.,

President of the Fairfield County Medical Society, Ct.

THE history of this malady is very scanty. A very exhaustive search by Dr. Horatio R. Bigelow, of Washington, D. C., through the large library of the Surgeon-General's Office, reveals the following testimony: "I have been through all the old Latin, French, and German literature from the fourteenth century to the present time, and there is *absolutely nothing.* Paré, in page 233, edition 1599, simply mentions it as a variety of tumor, but does not allude to it especially in the female. Scarpa, edition 1584, speaks of it merely in connection with scrotal hernia, etc. Ætius, Meckel, and Poland have nothing, save that Ætius alludes to it as a hydropsy. There is no history. I went through everything, and can only find the following: Out of all the current medical literature of the world for 1879, there was only one paper published on hydrocele in the female: O'Chien: über Entzündung der weiblichen Hydrocele, *Wiener med. Bl.*, 1879, II., 489, 519, 54. In 1880, only one, title: V. Cavagnes, Idrocele muliebre, *Gazz. med. ital. lomb.*, Milano, 1880, 11, 21, 24." In all the ancient works at my command to consult, I have been unable to see a single mention of it, though I have spent much time and research in the matter. Modern works on surgery and gynecology are almost equally silent. Savage, Emmet, Tait, Clark, Gross, Demilt, Bedford, Erichsen, Barnes, and Hewitt make no allusions whatever to it. Thomas, in the fifth edition of his work on Diseases of Women, is the first book in which

I saw any mention of it, and there he devotes two pages to a description of the disease and the citation of a case. He says, page 136: "This affection, which consists in a collection of fluid in the inguinal canal around the round ligament, is one of such rarity in the female that its very existence is commonly ignored, and mention of it is rarely made by systematic writers," and adds, as a foot-note, that "Scanzoni's work upon Diseases of Women contains an account of it." Schröder, in his work on Diseases of the Female Sexual Organs, Ziemssen's Cyclopedia, Vol. X., page 444, says of the malady: "Besides the simple edematous swelling of the connective tissue surrounding the ligaments, which also is doubtless often described as hydrocele, there are two forms to be distinguished—an extraperitoneal and an intraperitoneal. The former develops in the gubernaculum Hunteri proper (which afterwards in women becomes the ligamentum rotundum), beginning with a new-formation of cysts, or, if the gubernaculum is originally a hollow canal, as C. H. Weber claims, the preservation of this canal may be the first step in its development.

"The intraperitoneal hydrocele owes its origin to the development of a true processus vaginalis peritonei, which occurs exceptionally in females, and extends through the inguinal canal to the mons Veneris. In case the canal of this process is obliterated only at the internal inguinal ring, the original intraperitoneal portion of the canal may become a hydrocele. I have myself seen a case in which the serous contents could be emptied into the abdominal cavity, so that, in this case, the communication between the processus vaginalis and the abdominal cavity must have remained open.

"Hydrocele has the appearance of a soft translucent swelling, which may attain the size of a hen's egg, and it has *repeatedly* been mistaken for hernia and operated upon." He makes no mention of treatment, but appends a number of references, which are added to the bibliography attached to the end of this paper. I understand too late to consult the work, that Goodell mentions it in his Lessons on Gynecology.

From the foregoing it will be apparent that but little has been written on this interesting subject, and that little belongs to the literature of modern times. The anatomy and pathology are so ably described by Dr. Thomas that I take the liberty of quoting again from that eminent authority. "It has been already stated that the labia majora of the female are analogous to the scrotum of the male, and that the round ligaments, which are analagous to the spermatic cords, do not end in the mons Veneris as was formerly supposed, but passing downwards, enter the labia majora, and distribute their filaments within the dartoid sacs, which extend like glove-fingers downwards toward the fourchette. The peritoneal covering of these ligaments usually extends to the inguinal canals, but occasionally in young subjects it is prolonged through a portion of the canal constituting the canal of Nuck. In adults, this is ordinarily obliterated, and hence the rarity of hydrocele and hernia in the female. Sometimes it remains permanently open, when not only may the intestines descend, but even the ovary may pass down, making an attempt to enter the dartoid sacs and imitate the entrance of the testes into the scrotum.

"The affection is the result of excessive secretion on the part of this serous membrane, which, by the fluid collected within it, is distended laterally and downwards. Should the abdominal opening of such a sac remain pervious, the fluid thus collecting could readily be forced upwards as in the same affection in the male, but if that opening has become impervious the fluid becomes sacculated, and such return is impossible." This whole subject is one of great interest, and my attention was directed to it particularly by the reception and treatment of the two following cases:

Mrs. G., aged 37, American, married. Mother of four children, the youngest one and a half years old, came to me January 3d of the current year, with the following history: Eight years ago she was delivered with instruments, after a long and painful labor, of a large boy, weighing eleven and a half pounds. She had a slow getting up, and a short time after she had commenced to go about the house, she noticed an enlargement of the left labium. It gave her no pain or inconvenience, but she was alarmed at her condition and consulted a neighboring physician, and was told that she had a hernia, due to instrumental delivery of her child, that it was so small it probably would give her no trouble, and if it became painful or increased in size she should have a truss applied. Reassured by this, she let the matter go, and though it very slowly grew larger, still it gave her no inconvenience, nor did she suffer from any pain either on pressure or motion, so she did nothing for it. After the delivery of her last child, eighteen months previous, it enlarged so rapidly that she became frightened, and again consulted the physician before mentioned, who informed her that she had a very dangerous form of hernia, and that she must have a truss applied at once and to never go without it for a moment while on her feet. She said the doctor tried for a long time to reduce it, but failed, and he informed her that the truss would soon force it back by the constant pressure it exerted. He procured her a truss and she wore it more or less for the subsequent fourteen or fifteen months without reducing the size of the tumor. In fact it gradually grew larger. About two weeks previous to her visiting me, she again called on the doctor, and was told that it had grown fast and that an operation would be necessary, and that the sooner she had it done the better, as it was liable to become strangulated at any moment and jeopardize her life. She had the truss on when I examined her, and I found the following condition: The tumor was extended on either side of the pad of the truss. On removing the instrument, I found a soft fluctuating tumor in the left labia, about the size of a very large hen's egg. It resembled nothing I had ever seen, and I was somewhat puzzled as to diagnosis. I was quite satisfied that it was not a hernia and frankly told her so, at the same time requesting her to allow me to introduce a small hypodermic needle. She consented, and I at once plunged the needle into the most prominent portion of the tumor, and withdrawing the piston of the syringe the barrel was soon filled with a serous fluid very strongly resembling the fluid of a hydrocele in the male. I at once remembered seeing a case reported in the *New York Medical Record*, by Dr. Ezra M. Bennett, of Danbury, Ct., of hydrocele in the female, and believing that this was an analogous case, I informed the patient of my diagnosis, and told her that in order to effect a cure it would be necessary to withdraw all the fluid and inject something into the sac to produce inflammation enough to destroy the secreting surfaces. She at once consented, and introducing the fine needle of the aspirator I withdrew five and one-half ounces of straw-colored serum. Reversing the action of the instrument I injected about one-half a drachm of tincture of iodine, which caused so much pain that I was obliged to administed a hypodermic injection of morphia to quiet it. An active inflammation was set up within twenty-four hours, which gradually subsided in the course of the next six days, and in two weeks she was apparently as well as she ever was in her life. Since then I have examined her four times, the last on the 15th of May, and I am certain of the complete obliteration of the sac.

I was satisfied that I had a case of a very rare disease, and determined to look up the literature of the subject, which I found very meagre. Most of the best works on gynecology and surgery do not even mention it. The fact that a diagnosis had been repeatedly made that the above case was one of hernia, and a truss actually applied and allowed to be worn for nearly a year and a half, goes to show that the disease is not generally known, or at least recognized. Hence the necessity of a correct history seemed to me to be important. The more I studied the case and the more I pursued the subject in research, the more I became convinced that probably a number of such cases had been operated upon and cured without the nature of the trouble having been ascertained.

While I was pursuing my investigation into this very interest-subject and was congratulating myself upon the fact that I had seen one case of this rare malady, I was consulted, March 24th, with the following history, by Mrs. B., aged forty-four, married, mother of one child, who was born at seven months, the child weighing only four pounds, and which grew to be a fine, stout woman: In 1863, Mrs. B. had a miscarriage at three months. The year following, first discovered a tumor in the right labium, which slowly increased until it grew to the size of a small hen's egg. No pain nor inconvenience from it whatever. Never receded in the abdominal cavity while in the recumbent position, and could not be reduced in any position. She consulted Dr. Tucker, of Brooklyn, N. Y., who ordered an ointment (probably iodine) to be applied, which caused a good deal of irritation and some pain, with smarting and burning sensations. This was applied for quite a long time, with the result of reducing the size of the tumor to that of a robin's egg, in which condition it remained without causing further trouble or inconvenience till March of the present year. In the years 1865, 1869, and 1874, had other miscarriages. She was separated from her husband from April, 1876, to January 15th, 1881. She stopped menstruating December 25th, 1880. About the first of last March, the tumor began to grow very rapidly, until it greatly exceeded its former size, completely preventing intercourse. On the 24th of that month, she consulted me, and I found the following condition. A tumor situated in the right labium as large as a turkey's egg, completely occluding the vagina, with a soft fluid feel, non-reducible, painless, and unirritable. On holding a candle behind it, its translucency became at once apparent. I introduced a hypodermic needle, and withdrew a syringe full of a clear, limpid fluid. I made the diagnosis of hydrocele, and advised an immediate operation, but the patient being averse to having the aspiratory needle introduced, and finding, upon examination, that the fluid was oozing from the opening made by the hypodermic needle, and thinking that I might empty the contents in that way, I used bi-manual pressure, and after a few minutes, completely evacuated the contents of the sac. Then I thoroughly kneaded the surfaces with my fingers for the purpose of exciting sufficient inflammation to destroy the sac or produce adhesion of its walls. I then sent her home, telling her that in all probability more or less pain and inflammation would follow, and if anything serious happened, to let me know (she living several miles from my office). I did not hear anything from the case till March 28th, when I was requested to call and see her, she writing me a note saying that the tumor was of the original size, exceedingly painful, that she had not slept for two nights with the pain, and something must be done to relieve her of her suffering. Being professionally engaged in a case of confinement, I ordered her a quarter of a grain of bromide of morphia to be given every hour until relief was obtained, and an ice-bag to be applied to the inflamed part, and sent word that I would call and see her as soon as I was through with the case in which I was engaged. It was impossible for me to visit her before the next morning. I found the sac evidently had taken on suppurative action, and that it was filled with pus. It was fully as large as before, and exceedingly painful to the touch. She had passed a very comfortable night under the influence of the morphia and ice. I made an incision at the most dependent portion of the abscess, and a large quantity of pus was evacuated—I should say a teacup over one-half full. I washed it out thoroughly with carbolized water, 1 to 20, and directing that the washing should be done twice a day, I left her feeling very comfortable. She did the subsequent washings herself, and they were, of course, incomplete and ineffectual. Finally the opening I had made closed, and a re-accumulation of the pus began. At this stage of the case I was sent for again. The tumor was not quarter the size it was before, but the wound was closed, and it was becoming painful. I advised laying the sac completely open and excising it. She consented, and the next day, April 28th, I gave her ether, and laid the sac open from base to apex. I then dissected up as much of the sac as was possible, and packing the wound full of oakum, left her as comfortable as possible. After this, the wound was dressed and packed every day for two weeks, when the packing was left out, and in a few days the wound was entirely healed, and the patient was as well as ever. The convalescence was uninterrupted by a single unpleasant symptom.

There are several very interesting questions which arise while studying the history of this peculiar case. *First.*—Menstruation ceased December 25th, 1880, tumor commenced enlarging in March. Was there any connection between the two? *Second.*—She had been separated from her husband from April, 1876, to January, 1881, nearly five years. Did this have any effect upon the sudden enlargement of the tumor? Did the labor have any influence upon the origin of the tumor?

In a monograph published by Dr. Chas. A. Hart, of Plainfield, N. J., in 1872, a very interesting case is reported, of which the following is a brief synopsis.

Mrs. P., aged 45, was thought to have a strangulated hernia by her family physician, because she had a tumor in her right groin which had existed some time, *and she had vomited* once. He called in two other physicians, one to operate for the supposed hernia. Taxis was tried ineffectually by the consulting surgeon, who made the remark, "It is surprising how soft the tumor is, and how remarkably thin the parietes are." Finally the patient was put under the influence of chloroform, when taxis was again applied, which "only seemed to drive the contents of the tumor in a contrary direction to one or the other side, or upward, while, as soon as pressure was discontinued it returned to its former size and appearance." After this an incision was made, bringing into view a smooth, bluish, and *translucent* sac. The tumor could not be reduced any more now than before. After ineffectually trying to reduce it by manipulation, one of the physicians present became convinced it was not a hernia and advised: "*Cut into it. It is not intestine you have here.*" The operator thrust an exploring needle in to it, on withdrawal of which about three ounces of a clear, limpid fluid spurted out arch form, resembling hydrocelic fluid. "Of course, the sac collapsed, and it was now freely laid open in search of intestine or omentum, but neither was found; but a long, thick, fatty mass lay in the canal of the round ligament, free in front, but adherent behind. This was in no way inflamed or discolored. The patient made a good recovery from the operation, and Dr. Hart did not see her for three years, when he made an examination, and she gave the following history: Eighteen years ago, she noticed the tumor first while bathing, about two or three months after a not severe confinement. The tumor was hardly then the size of a filbert, and not attended with pain. She made repeated efforts to reduce it, supposing it to be a hernia, but never succeeded, nor has it ever receded in the recumbent position. It slowly but steadily increased in size till the time of the operation in 1867, following which she kept her bed for six weeks, though the wound closed in three. A short time after being about again, she noticed a commencing return of tumor, while at the present time (October 26th, 1870), it was its former size, and, like it, of gradual growth and free from pain." I wrote the doctor in reference to the result of this case, and he very kindly gave me the following information. "The subject of the malady is now a resident of this place and is substantially in the same condition as when I last reported her case. The tumor has not increased its bulk, gives no annoyance, and has never receded within the abdominal cavity. She is now advancing in years, and will probably, ere long, furnish an opportunity for the closer study of this rare malady."

The history of this case is very instructive as well as interesting, showing, as it does, how easy it is to mistake the condition for one of hernia. If the bottom of the wound had been packed with oakum, as in my Case II., and had been allowed to heal from the bottom, in all probability the result would have been permanent, and there would have been no recurrence of the tumor.

The next recorded case I find is one reported by Dr. Ezra R. Bennett, of Danbury, Ct., in the *New York Medical Record*, Nov. 15th, 1870. Dr. Bennett says:

"In an extensive practice of over forty years, but one single case has come under my observation. This case occurred recently in a young married female, residing in Putnam County, and was mistaken by a surgeon of some eminence for a case of inguinal hernia, who endeavored to reduce it, but failing to do so, pronounced it adherent and irreducible, and advised letting it alone."

That such a mistake should have been made is not at all surprising, as it was a hydrocele of the round ligament, coming down through the inguinal canal, and occupying exactly the place of inguinal hernia and closely resembling one. She subsequently came under my care, and upon inquiry I learned that about five years since a small tumor had made its appearance, which had slowly and steadily increased in size until it attained its present size, which was about as large as a turkey's egg. It had not been painful, was not attended with abdominal disturbance, had never receded when recumbent, and gave to the touch a feeling of fluid contents instead of the doughy feel of hernia, and I therefore thought that, whatever it might be, it was not a hernia, and upon closer inspection I diagnosed hydrocele of the round ligament, although it was not diaphanous. So sure was I of a correct diagnosis that I at once proposed an operation, to which she readily consented, and with the aid of a professional brother, who coincided with me in my diagnosis, I proceeded to cautiously lay open the sac, when we found to our great satisfaction that we had not blundered in our opinions. The serous contents of the sac having been evacuated, I injected it with a saturated tincture of iodine, and she speedily recovered without the intervention of a single unpleasant symptom.

This case is only important for its rarity, and the fact that most physicians are not aware that hydrocele can or even does occur in the female, and my object in writing this article is not to record any remarkable surgical achievement, but to call attention of physicians to this subject, and thereby prevent mistakes which might be attended with disastrous results.

In reply to a letter of mine to Dr. Bennett, in reference to the case, as to whether the result was permanent, I received the following:

"For two or three years she remained perfectly well, when she became pregnant, and at the fifth or sixth month, upon some more than ordinary exertion, she felt something give way, and there appeared suddenly in the inguinal canal an elongated tumor, which I pronounced omental hernia. I cut down upon it and found as I suspected an omental hernia, which I returned, freshened the edges of the ring, closed the wound, and ordered a truss, hoping to effect a radical cure. After this I lost sight of the case and have not seen it since."

I have quoted these two cases in extenso, because they are the only ones I have been able to find in which the details are fully given. After the occurrence of my second case, I desired to find out what had been the experience of the leading lights in the gynecological and surgical branches of the profession in this country. I addressed fifty letters to most eminent gentlemen in these two branches, and the result has exceeded my anticipations, for several facts were plainly brought out. *First*, the rarity of the trouble. *Second*, the fact that many physicians do not even know of the existence of the malady; and *thirdly*, securing a number of cases which would in all probability have perished, but which serve now to enrich the literature of this subject, and add to the number of cases on record. Dr. W. T. Lusk, of New York City, writes: "I have never seen any case of hydrocele in the female, and indeed was not aware that the fair sex were ever subject to that somewhat masculine disorder." Drs. A. A. Smith, Paul F. Mundé, H. J. Garrigues, T. Gaillard Thomas, E. Noeggerath, T. M. Markoe, Willard Parker, Jas. R. Wood, H. B. Sands, of New York City; Drs. T. M. Drysdale, R. A. F. Penrose, of Philadelphia; H. P. C. Wilson, Baltimore; Q. C. Smith, Austin, Texas; Horatio R. Bigelow, Washington, D. C.; Edward S. Dunster, Ann Arbor, Mich.; C. C. P. Clark, Oswego, N. Y.; Edward H. Parker, Poughkeepsie, N. Y., and J. L. Caircow, New Orleans, La., all write that they never met with a single case of hydrocele in the female. Dr. R. L. Pinching, of San Francisco, Cal., writes: "I have been in practice for nearly fifty years, but I have never met with, nor have I ever heard of any such case either in my private or consulting practice." Prof. S. D. Gross, writing from Philadelphia, says: "I have not met with such a disease, at all events I have no recollection of any such cases." Dr. Robert Battey, of Rome, Ga., says: "I am sorry that I cannot contribute anything to help you in the preparation of your paper; I have not encountered any case in my field." Dr. T. A. Emmet writes: "I have never seen a case of hydrocele in the female, and only know of one reported by Dr. C. A. Hart, of Plainfield, N. J." Dr. C. A. Bryce, editor of the *Southern Clinic*, Richmond, Va., says: "In a large practice, of a general and special kind, I have never met with such a case as you mention, and it will be a rare and interesting report." Dr. Walter R. Gillette, of New York City, says: "I have questioned several gentlemen here who are having extensive clinical experience in gynecology, but, like myself, have no personal experiences to offer you. I am glad you have determined to report your cases. Perhaps we have overlooked the condition, for there seems to be no anatomical reason why the disease may not occur more frequently than is apparent from the meagre literature on hand." Prof. Hunter McGuire, writing from Richmond, Va., informs me that he "cannot now recall any case of hydrocele in the female, and does not think he has ever seen one." Prof. Alfred C. Post, of New York City, writes: "I have never met with any cases of hydrocele in the female. The disease must be very rare, and it is remarkable that you should have had two cases." Dr. J. Wm. Walls, of Philadelphia, says: "They are very rare, and you are fortunate in meeting with two such cases. In my practice of twenty odd years I have never had the fortune to meet with a case." Dr. Alex. J. C. Skene, of Brooklyn, writes: "In answer to your note, I can only say that I never saw a case of the kind referred to." The testimony of these gentlemen of large experience is very valuable, going as it does to show the rarity of this very rare affection. In answer to my letter of inquiry, Prof. Fordyce Barker, of New York City, writes me the following very interesting communication: "I have just received your letter and at once reply, although I am compelled to do so in very brief terms.

"I have met with but one case of hydrocele in the female, if by that term you mean a serous effusion in the canal of Nuck. In this case it was first supposed to be a hernia, and a truss was applied. But the tumor continued to increase in size around the point of pressure of the pad. About two years after the truss was applied, I was called to see the case in consultation. The negative signs of hernia were so marked and the fluctuation was so distinct that I proposed to my friends who were attending the case, a very small exploring trocar. Twelve ounces of a very clear fluid were evacuated, and the tumor entirely disappeared and never returned. The patient had been married thirteen years, but had never been pregnant. Seventeen months after the evacuation of the tumor, I was again called to see the patient, and delivered her by forceps of a living child, since which I have never heard of her."

This case is very interesting from the fact of the large quantity of fluid evacuated, and the large size of the tumor, as well as the fact that no operative interference was had, save the simple abstraction of the fluid from the sac, and the case entirely recovered without anything being done to excite inflammation and adhesion.

Prof. Wm. Goodell, of Philadelphia, writes: "I can recall but one case of hydrocele of the round ligament in my practice, although I fancy I had another." The doctor gave me no notes of his cases, consequently they lose somewhat of their interest. Prof. Wm. H. Byford, of Chicago, writes: "I have met with two instances of hydrocele in the female. They were cured by incision and drainage." Dr. Frederick S. Dennis, of New York City, assistant to Prof. James R. Wood, in a note says: "I have seen one case in the canal of Nuck, and know of several others. The case I saw was treated by simple tapping, without any injection of iodine. This was done by Langenbeck, of Berlin." Prof. J. H. Etheridge, of Chicago, Ill., writes: "I have had two cases under my care. The first was properly a hydrocele, but which passed from under my observation, and whose subsequent history I cannot give you. The second one was a collapsed hydrocele cavity, and I suppose would hardly be classed with such cases as you desire to hear of. The labium was large and baggy, and the history of hydrocele was given. Counter-irritation along the groin was followed by its collapse. Cause is patent, and under my care, free use of the same line of treatment diminished the size of labium very much, nearly nine-tenths."

This concludes the testimony received, and I desire to most cordially thank the gentlemen mentioned for the very kind and valuable assistance rendered, and which adds in no small degree to the interest of this paper. Their replies in connection with the cases furnish food for thought and reflection, and were not my time limited I should like to go into the matter more exhaustively than is possible for me at present. The history and the study of the foregoing cases go to show that it is a very rare malady, and if of ancient origin was not recognized by the physicians and surgeons of those days. The cause is obscure. Labor would seem to have some influence in producing it, and in three of the cases at hand the trouble dated shortly after confinement. The diagnosis will not be difficult in the extra-peritoneal variety. Its diaphanous character, absence of pain, slow growth, not receding into the abdominal cavity, either by taxis or while in the recumbent position. Peculiar fluidy feel imparted to the fingers during manipulation, the absence of resonance on percussion, no constitutional excitement, all go to make the diagnosis comparatively easy, and the only affection I think it could possibly be confounded with is hernia. To make assurance doubly sure, however, a small exploring needle, or what is still better, the fine needle of a hypodermic syringe should be passed in, when its character will become at once apparent. If it should prove to be a hernia, no harm will be done by the puncture. After the diagnosis is made, evacuate by the aspirator, with the injection of tincture of iodine, would be to my mind the preferable treatment to incision and drainage. I think the history of my second case should put us on our guard against too free manipulation of the surface after the evacuation has taken place. Like hydrocele in the male, this disease is undoubtedly sometimes congenital, though I can find no mention of any cases in the literature gone over. I am under many obligations to my friend Dr. Horatio R. Bigelow, of Washington, D. C., for his laborious research through the volumes of the Surgeon-General's Office after the literature of the subject.

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SANDY HOOK, CT., June 1st, 1881.

A CASE OF CESAREAN SECTION MADE NECESSARY BY TWO LARGE FIBROID TUMORS OF THE UTERUS,

SUCCESSFULLY PERFORMED FOR BOTH MOTHER AND CHILD.

BY

MOSES BAKER, M.D.,

Stockwell, Tippecanoe County, Indiana.

ON November 3d, 1880, I was called to see Mrs. L., a white woman of English parentage; primipara; 34 years of age; the wife of a well-to-do farmer. I found her a well-developed, healthy woman of 150 or 160 pounds weight. She thought herself in labor at full term. I saw her at 10 A.M. On examination I found the waters draining off and the pelvis filled with a solid fibroid tumor, which rendered it almost impossible to reach the os uteri by digital examination; consequently I only knew that the membranes were ruptured by the liquor amnii which was escaping.

On farther examination I found the abdomen very much more enlarged than in an ordinary case of pregnancy, uneven on the surface, with a large fibroid mass above and to the right of the umbilicus, which appeared to be as large as the head of a young child, and a well-defined sulcus between this tumor and the left side of the fundus uteri. The tumor rose much higher in the abdomen than the womb, crowding the liver and the ascending colon far back and to the right. Below this tumor and to the left side of the abdomen, I found the uterus, the fundus of which reached above the umbilicus and was firmly pressed to the left. The lower part of the belly immediately above the os pubis was very prominent and hard, so much so that I feared we had another fibroid in the lower anterior portion of the uterus. In fact this was the opinion of my consulting physicians.

The condition of the woman therefore was the following: A living child in utero at full term, with a fibroid tumor filling the pelvis, a second springing from the fundus uteri on the right side as large as a child's head, and possibly a third in the lower part of the anterior wall of the uterus, and the woman in the first stage of labor.

The tumor in the pelvis could not be moved by any force which I dared to exert.

For the woman to be delivered by the natural process was impossible, for there was no perceptible space between the anterior part of the tumor and the os pubis.

I then informed the patient and her husband of her condition and desired a consultation. Drs. D. H. Crouse, of Dayton, Indiana, and John Simison, of Romney, were called to my assistance. They saw Mrs. L. on the morning of the 4th, and on thorough examination by means of Sims' speculum we were enabled to reach the os uteri, which we found very high up, entirely above the os pubis, and we could feel a fold of the scalp of the child protruding from the os uteri.

At this time there were but slight dilating pains. The woman was in good spirits, very confident that she would get through all right.

On consultation, we concluded that there was no possible way of delivery except by the Cesarean operation. There was not enough room for craniotomy with the slightest hope of success.

But, as the woman was not suffering much, and she and her husband had not made up their minds to so grave an operation, and I could not promise them much from my knowledge of the history of the past, they concluded to await developments. So the consultants agreed to meet me the next day and see her again.

Accordingly, on the 5th, at 10 A.M., another consultation was held. Our patient had spent a tolerably comfortable night, but her pains had increased somewhat, both in frequency and severity, but still were not of an expulsive character.

She still kept her buoyancy and good spirits, and said she would get through all right, but was willing for the operation if we thought best. But, as she was not suffering much, and the day was exceedingly dark and gloomy, raining, with the wind from the East, and the necessary assistance not at hand, and we four miles in the country, we concluded to postpone the operation until the next day, the 6th, at 10 A.M.

In the mean time the pains increased, so that by the morning of the 6th they became expulsive in character. I quieted her with morphine, which she bore well in good-sized doses.

On the morning of the 6th, three days after the rupture of the membranes and sixty hours after slight pains commenced, I proceeded to perform the operation of Cesarean section, assisted by Drs. D. H. Crouse, J. Crouse, and L. Strother, of Dayton, Indiana; John Simison and Pike, of Romney, Indiana; A. A. Wells and William Lambert, of Stockwell.

Our patient lost none of her cheerfulness or confidence in her recovery, but took her place at the side of the operating table, ready to be lifted on it, as unconcerned, to all appearances, as though it was some other person who was most interested. May not this good spirit and courage have had something to do with the success of the operation?

She was given two ounces of whiskey, and anesthesia was produced by equal parts by measure of chloroform and ether well shaken together.

We placed her on her back with her head low and limbs extended. The first incision was made from a point two inches above the pubis to two inches above the umbilicus in the line of the linea alba, and to the right of the umbilicus, down to and then through the peritoneum. The uterus was incised in the same manner from below upwards, the wound being about six inches in length.

In making this incision, I expected to find the wall of the uterus at least much thickened, as we had decided that there was an uncommon enlargement in this region, extending from the os pubis upwards about six inches. But on making my incision I was surprised to find this anterior tumor to be the head of the child, which was crowded far forward by the lower tumor, which extended up out of the pelvis behind the child and formed the lower posterior part of the wall of the uterus.

The following was the position of the head: The face presenting toward the mother's left groin; the right side of the head resting on top of the os pubis. The head was not only crowded forward by the lower tumor, but was pressed downward by the upper tumor, and was thus flexed laterally toward the left shoulder, and it was firmly held in this position for at least six weeks before the operation, for I had frequent opportunities for examining the woman previous to her delivery. The right parietal and frontal bones received quite a deep indentation from pressure against the brim of the pelvis.

Just as I made the incision through the walls of the uterus, a strong contraction came on and violently separated them in the line of the incision so as to entirely expose the head of the child. I lifted the head from the os pubis, hooked my finger in the axilla and lifted the child out of the womb. After tying and cutting the cord as in a case of natural labor, the child was handed to the nurse. Up to this time the woman had lost but very little blood, I should think not more than two or three ounces. We had no vessels to ligate. After delivering the child, I proceeded to deliver the placenta.

This I found very fortunately attached to the posterior wall of the uterus between the two tumors. And as there did not appear to be much power in this part of the uterus to contract I peeled it off as rapidly as possible. Now the bleeding was frightful.

But as soon as I could remove the placenta I filled the space with a towel wet in cold water, to which one per cent of carbolic acid had been added. I then crowded the upper tumor down upon the lower one. By this means, and by freely sponging the cavity after removing the towel, I succeeded in stopping the flow.

My assistants also injected into her arms brandy and the fluid extract of ergot very freely, the former of which I think very much assisted to keep her alive. I am not sure that the ergot was of any benefit whatever.

After stopping the hemorrhage, and carefully sponging out all the blood and water, and making sure that there was no more bleeding, we closed the wounds ; first by putting four carbolized silk sutures in the uterus—not through the entire thickness of the walls, but passed in near the mucous surface and out a short distance from the incision through the peritoneal coat, so that when they were tied they brought the peritoneal coats together first.

The sutures were cut close to the knots. The walls of the uterus in the line of the incision were about three-fourths of an inch thick, and before the sutures were put in gaped open very much. This gaping was caused by the bulging up of the lower tumor into the cavity after the uterus was emptied of its contents.

The upper tumor then came down into full view through the abdominal incision.

Its inner surface, some three or four inches square, constituted the upper and posterior part of the wall of the uterus. Its peritoneal surface was uneven, presenting several protuberances about the size of hulled walnuts.

The peritoneal covering was smooth and glistening. Before closing the abdominal incision it became necessary to return nearly a foot of small intestine which had become entangled in the folds of a towel with which my assistant was holding them in place.

While sponging the uterine cavity, the omentum came down in the way and was quite severely lacerated by the sponges. These lacerations I trimmed off with the scissors. I suppose I removed an ounce or more of the omentum.

After removing the child from the uterus, the bladder protruded into the lower end of the incision, but happily we did not injure it. After getting the bowel replaced, the omentum trimmed, and the bladder in place, we proceeded to close the abdominal incision. This was done by means of five silver-wire sutures passed through the entire thickness of the wall, including the peritoneum.

Then, in order to close well the external wound, a carbolized silk suture, including only the integument and cellular tissue, was passed between each two wire sutures.

Then in order to relieve the stitches from tension, adhesive strips were applied.

These strips were one and one-half inches wide, placed two inches apart, and long enough to go well around the body.

We then dressed the wound with a soft well-worn cotton cloth, four double, large enough to cover the anterior part of the abdomen, and wrung out of tepid water containing one per cent of carbolic acid. This was bound on with a dry cloth of the same material.

This dressing was continued until the wound had entirely healed.

All our instruments, sponges, cloths, ligatures, and hands were bathed in carbolized water. After placing the patient in bed she was given a hypodermic injection of morphine and warm bottles were placed to her feet. She soon rallied from the anesthetics and the shock of the operation, and expressed herself as feeling very comfortable and much relieved both in body and mind.

With the reaction the pulse came up to 120. It was 80 before the operation. The operation began at 11 A.M., was finished, and the patient put in bed in seventy minutes. The weather was exceedingly dark and stormy at the time.

She spent a comfortable night, and by the close of the first twenty-four hours her pulse came down to 100 and did not go above that during the succeeding eight days.

She passed her urine without assistance. Could take some nourishment and was not very thirsty, but her bowels did not move until the third day after she was delivered. By this time they became much distended with gas, causing her great uneasiness.

To relieve this I gave her an enema of soap and water and decoction of asafetida.

I also passed a flexible tube up into the descending colon; this being a difficult operation, because of the pressure of the lower tumor on the intestine. It gave great relief, however, causing an action of the bowels with the discharge of a great amount of flatus.

After this the tube was passed as often as once or twice a day for at least two weeks.

Her mammary glands filled with milk on the third day and were very full for three or four days, but then subsided. We did not put the child to the breast, but I believe now it would have been better for all concerned to have done so.

I removed the superficial silk sutures on the third and fourth days; the silver wires on the eighth and ninth days.

On the eighth day she began to complain of pain in the calf of the left leg and general tenderness of the whole limb, and from this time on she rapidly developed phlegmasia dolens until, by the twelfth day, the whole left extremity was badly swollen.

Fever came up on the second day of the attack of phlegmasia. The pulse, which had not been over 100 since the second day after the operation, now rose to 120. I gave her on the tenth day after the operation and the second day after the attack of phlegmasia, the first medicine she took excepting the morphine. This she was kept pretty well under the influence of, for she bore it remarkably well, it having produced none of its bad effects, but simply kept her comfortable and happy.

But on the tenth day, when the pulse rose to 120 and temperature to 102°, I gave her sweet spirits of nitre and Norwood's tincture of veratrum sufficient to bring the pulse down to 96 and temperature to 99°.

The room was kept as near the temperature of 70° as possible with a wood-fire in a stove, and it varied but little. By the thirtieth day she had fully recovered both from the operation and the phlegmasia. About the tenth day after she got up, the cicatrix suppurated in two places—one just below the umbilicus, the other half-way between the umbilicus and pubis.

A common silver probe could be passed into the upper sinus directly inwards apparently to the centre of the upper tumor, which had shrunken very much by this time, but was still as large as a quart bowl.

The lower sinus passed into the body of the uterus, and a probe would enter readily for a distance of three inches. The upper sinus continued to discharge for near three months, but much less toward the last, and finally healed entirely, not, however, until the tumor had entirely disappearad.

The lower opening continued to discharge for nearly two weeks longer, and until after the menses appeared, which they did on the 8th of last March.

At that time she menstruated freely and without pain, but a good portion of the menstrual fluid escaped through the fistulous opening.

I then cauterized the opening with carbolic acid, after which healthy granulations sprang up and the sinus was obliterated. Since that time she has menstruated twice regularly and normally.

At the present time, May 9th, the lower tumor is still very large, entirely filling the pelvis. It is somewhat movable, but still extends from the floor of the pelvis to near the umbilicus, and the uterus is situated on top of it. The uterus is also adherent to the walls of the abdomen at the site of the lower fistulous opening.

By placing the woman on her knees and elbows, the os uteri can be reached by the finger. The anterior lip appears natural, but there is no posterior lip, no protrusion of the neck into the vagina, merely a smooth surface extending directly along the tumor into the uterus.

There is no weight or tenderness complained of in the pelvis or uterus. No trouble in passing the urine or feces—in fact no complaining of any kind. She expresses herself as feeling perfectly well, and she is the picture of health.

As to the future, will she become pregnant again, and, if so, what then?

The depression in the right parietal and right frontal bone of the child's head, made by long-continued pressure on the brim of the pelvis, extending, as already stated, over a period of at least six weeks, is not yet quite obliterated. Otherwise the child is well developed and healthy.

PREGNANCY, PARTURITION, AND CHILDBED AMONG PRIMITIVE PEOPLE.

BY

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As I have already called the attention of the profession to some of the peculiar features in the obstetric practice of savage races, I will now, for the better understanding of these details, completely describe that most interesting period in the life of woman, so important, socially as well as professionally, —the time of pregnancy, labor and childbed.

We will find among the natural habits of primitive people many points of resemblance to the customs of our more advanced civilization. In their views, in their methods of treatment of the parturient, we see rudely depicted the lying-in chamber of to-day; indeed, many a labor in the cellar or the attic of a crowded city, or in the log cabin of a secluded country district, differs but little from that which we will find in the *tepee* of the Indian or the hut of the Negro; in fact, it is here that we often see customs which are rudely indicative of some of the very best of our modern improvements upon which obstetricians greatly pride themselves; observation has taught these children of nature many a lesson of which, in their natural shrewdness, they have profited.

PREGNANCY.

We can trace a certain resemblance throughout; thus a great deal of interest, and I may say of importance, attaches among many tribes to the pregnant state, be it in the jungles of India, in the wilds of Africa, or upon our own prairies. It is to the woman an eventful period of her life, and is appreciated as such by her tribe as important, not only for herself but for all her people. The Andamanese, for instance, are extremely proud of their condition, which in their native state is of course very evident to any beholder, and if a stranger shows himself in their villages, they point with a grunt of satisfaction to the distended abdomen. Among the Hebrews and other people of ancient times, sterility was a disgrace (Gen. xi. 30; Exod. xxiii. 26; Kotelman), and the mother of many children was a greatly envied woman. Conception was favored, although no laws existed upon the subject, by coitus soon after the cessation of the menses, the act being forbidden only during religious service and upon the days of the high feasts.

Abortions as a rule are not numerous; the African tribes in the main are fond of children, and hence rarely destroy them. Among some of our Indians, especially those in closer contact with civilization, laxer morals prevail, and we find abortion quite frequent; some tribes have a reason for it, on account of the difficult labor which endangers the life of the woman bearing a half-breed child, which is usually so large as to make its passage through the pelvis of the Indian mother almost an impossibility.

In old Calabar, medicines are regularly given at the third month to prove the value of the conception. Three kinds of conception are deemed disastrous: first, if resulting in twins; second, in an embryo which dies *in utero;* third, in a child which dies soon after birth; and it is to avoid the further development of such products that the medicines are given; the idea being that, if the pregnancy stands the test of these medicines, it is strong and healthy. In case the ovum is expelled, it must have been one of these undesirable cases of which no good could have come. The medicines are first given by the mouth and the rectum, then *per vaginam*, and applied directly to the *os uteri*, provided that a bloody discharge follows the first doses. For this purpose they use one of three herbs: a Leguminosa, an Euphorbia, or an Amomum. The stalk of the Euphorbia with its exuding juice is pushed up into the vagina; on the same part of the leguminous plant is placed some Guinea pepper, chewed into a mass with saliva: in a few days the abortion takes place. The measures employed are frequently too severe, as constitutional disturbance, and sometimes death follows. Among Indians and Negroes abortion is now and then practised if a suckling mother conceives, as they reason that the living child is the more important and would be harmed by the drain which the new pregnancy necessarily exerts on the strength of the mother.

The seventh month is not unfrequently regarded as dangerous, as many abortions then occur. For this reason, in Old Calabar, the patient is generally sent away, as pregnancy advances, to a country place where she can live quietly and free from the excitement and bustle of the town; and above all where she can be out of the way of witch-craft. A great many superstitions exist among all peoples in reference to this important epoch, more especially among some tribes of the Finns, for instance the Esthonians; one of the most amusing of these ideas is the weekly changing of shoes customary among pregnant women, which is done in order to lead the devil off the track, who is supposed to follow them constantly that he may pounce upon the new-born at the earliest moment.

The same great wish prevails for a boy among savage races as among our own people, even to a much greater extent, and naturally so, as in the male child the warrior of the future is looked for; our own Indians, as well as the Negroes of Africa, have numerous ceremonies by the faithful observance of which they hope to produce the desired sex; but, however interesting they may be, we cannot now enter upon their further consideration.

Here and there signs of pregnancy are carefully observed: in Old Calabar, as well as in the interior of Africa, pregnancy is counted from the suspension of the menses, and the time is reckoned by lunar months; among Sclavonians the appearance of freckles is looked upon as a safe sign of pregnancy.

The care which is taken of pregnant women depends, of course, greatly upon their surroundings and increases with the civilization of the people. We see this best illustrated among the North American Indians: very little or no distinction is made among the nomadic tribes, but as soon as we come to a more sedentary population, such as the Pueblos, or the natives of Mexico, we see that they become more considerate. No over-exercise is permitted, warm baths are frequently taken, and the abdomen is regularly kneaded in order to correct the position of the child. This is also the case in Japan, and whether the diagnosis of a malposition is made in the early stages of pregnancy or not, it is a fact that the abdomen is subjected to this treatment, and, unquestionably, in many instances, the position is thus rectified. This is done by massage and manipulation among these somewhat more advanced people, whilst the nomadic Indians of the prairie accomplish the same end by hard work and horse-back riding. The great danger in labor, and to the savage woman *the one* great danger, is a transverse position of the child. This they must use every means to avoid, as with them death is certain if labor is inaugurated with the child in such a position.

I have already described in full the method of rectifying malpositions as practised in Japan, in my paper on "Posture," and will only say that the process, mainly massage, is repeated every morning after the fifth month, the practitioner making the patient stand up and put her arms around his neck. The Andamanese and the Wakamba of Africa, many of the nomadic Indians, and undoubtedly almost all of the women of savage tribes work up to the very hour of labor. Rigby states that he finds the easiest labors, and the best results, when the women work or continue their wonted employments until labor pains are upon them; it always goes worse with those who idle beforehand, with the view of saving themselves and making labor easier. This statement we find constantly verified in our ordinary practice; we know that the working women—and we have many such—who continue their wonted employments until the very moment of delivery, have the easiest labor. It is the lady who is so conservative of her strength and anxious to do everything in her power to promote her health and the welfare of her offspring, who suffers most. At all events we shall not fear evil, and the pregnant woman will fare best in the coming labor, if she will continue as long as possible in the exercise of her usual duties, whatever they may be.

In Mexico, as the old histories tell us, the pregnant woman was forbidden to yield too freely to the desires of the husband, although coitus was indeed ordered to a certain extent, so that the offspring might not prove weakly. In Loango coitus is not forbidden. Some regulations with regard to the act exist among other tribes, and the too free exercise of matrimonial rights is often cautioned against.

The well regulated government of old Mexico was careful of pregnant woman in many ways; the Burmese women wear a tight bandage about the abdomen after the seventh month of pregnancy, to prevent the ascent of the uterus, under the idea that the higher the child ascends in the abdomen the farther it will have to travel in labor when it descends, and hence the more painful the delivery will be. In Japan, the midwife is consulted at about the fifth month, and she then binds the abdomen with a cloth which is not removed until labor begins, it being kept there so that the child should not grow too large. It is the same procedure which is followed in India, although the underlying idea is different, and three times a month the abdomen is rubbed. The Nayer women bathe a great deal during pregnancy, taking good care of body and soul. In fact, the frequent bathing of pregnant women is common also to all the higher castes of India. The Nayer perform a ceremony during the first month of pregnancy, but as it so frequently happens that a woman erroneously considered herself in that condition, this ceremony for the preservation of the pregnant woman against the wiles of the devil is usually delayed until the fifth or even the seventh month; and upon the following morning she very properly drinks the juice of tamarind leaves mixed with water.

Here and there some preparation is made to ease the intensity of the coming labor pains. Upon the isle of Jap, in West Mikronesia, they begin to dilate the *os uteri* at least one month before delivery is expected; the leaves of a certain plant, tightly rolled, are inserted into the *os*, moistened by the uterine secretion they distend, and when fully dilated a thicker roll is introduced. They are to act upon the principle of laminaria or sponge tent, slowly dilating the mouth of the womb and making labor more speedy and less painful.

A very pretty idea exists among the Pahutes with regard to the coming of the child; they recognize the approaching time for the addition to their household and tribe, and seek to make preparation for the advent of the young stranger; that is to say, they endeavor to make his journey easy and expeditious with the least possible pain to the mother. Their ideas are crude and fallacious, yet to them sufficiently convincing to be universally practised. They consider the sojourn of the offspring *in utero* as a voluntary matter, and after a given length of time, say nine moons or the lapse of certain seasons of the year, the child is to be starved out of its maternal quarters as a wood-chuck or other game is to be forced out of its hiding place; hence, for weeks before the expected event a fast begins with the mother, which becomes almost absolute as the time approaches, so that by the end of the allotted period of gestation the fetus will not only be ready, but anxious to come to the world in order to reach the supply of milk which the mother has now in waiting for the child starved in the womb. They of course act on the presumption that the child is nourished by ingestion from the mother. But another reason or object they have in view is, that this treatment, this fasting, reduces the maternal tissue over the genital organs and thus opens a wider door for the exit of the fetus. After this preparation, when labor has actually begun, they regard its phenomena as due to voluntary efforts on the part of the child to leave its inhospitable quarters for exterior life, and everything in their rude philosophy is done to facilitate and help the little fellow along on his journey.

LABOR.

Among primitive people, still natural in their habits and living under conditions which favor the healthy development of their physical organization, labor may be characterized as short and easy, accompanied by few accidents and followed by little or no prostration; the squaw of the Modoc Indians—a tribe which has been but little affected by the advance of civilization—suffers but an hour or even less in the agony of childbirth; the Sioux, the Kootenais, and the Santees are somewhat longer in labor, not, however, over two or three hours; two hours being about the average time among the North American Indians. The period of suffering is very much the same among the natives of Africa and of Southern India, the inhabitants of the Antilles and the Caribbees, of the Andaman and the Australian islands, and other savage people.

What little fear exists as to the occurrence of this event, which is so much dreaded by many of our delicately constituted ladies, may be judged from the instances of speedy and unexpected delivery so often related by those in contact with the Indians. Dr. Faulkner, who spent some years among the Sioux tribes, tells me that he has known a squaw to go for a pack of wood in mid-winter, have a child while gone, wrap it up, place it on the wood and bring both to the lodge, miles distant, without injury. Dr. Choquette says, that two or three years ago, an Indian party of Flat Heads and Kootenais, men, women, and children, set out for a hunting trip; on a severely cold winter's day, one of the women, allowing the party to proceed, dismounted from her horse, spread an old buffalo robe upon the snow, and gave birth to a child which was immediately followed by the placenta. Having attended to everything as well as the circumstances permitted, she wrapped up the young one in a blanket, mounted her horse, and overtook the party before they had noticed her absence.

It seems to be an equally easy process among all people who live in a perfectly natural state. As civilization is approached, the time of labor is more extended. The Mexican Indians, half-civilized, require three to four hours for delivery, and the same is true for all such tribes as are in closer contact with the whites, as well as of other half-civilized people. Accidents rarely occur; thus a physician tells me that during a residence of eight years among the Canadian Indians, he knew of no accident, and heard of no death in childbed. Another professional brother, who lived four years with the Oregon Indians, was not aware of any irregularity occurring in that time, nor was he ever called upon to perform a more serious operation than the rupture of the membranes.

This may be accounted for by the active life which women lead among these people; all the work is done by them, so that the frame and the muscular system are developed, and the fetus, by constant motion, may be said to be shaken into that position in which it best adapts itself to the maternal parts, into the long diameter, and once in such a position it is held there by the firm walls of the maternal abdomen, and the birth becomes easy. Moreover, they do not marry out of their own tribe or race, and the head of the child is adapted to the pelvis of the mother through which it is to pass.

As soon as there is any deviation from these natural conditions, trouble results. Positive statements from several of the Indian tribes indisputably prove the truth of this rule; thus many of the Umpqua squaws die in childbed with half-breed children, whose large-sized heads do not permit of their exit. The Umpqua mother will be easily delivered of an offspring from an Umpqua father, but the head and body of a half-breed child is apt to be too large to pass through her pelvis. Unquestionably this is the case also among other savage tribes.

We can then readily account for the rapid and easy delivery of savage women who live in a natural state, and the rarity of accidents from these facts: First, they marry only their kind, and thus the proportions of the child are suited to the parts of the mother; secondly, their more healthy condition and vigorous frames; while, thirdly, from the active life they lead, head or breech presentations result. Should this latter fact not occur, the mother is generally doomed, or at best, the labor is extremely prolonged and fatiguing. If the child lie transversely in the pelvis, it cannot be born, and death follows.

The nearer civilization is approached, the more trying does the ordeal of childbirth become, as in the case of the Umpquas just cited. I am told that among the women of the Green Bay Indian Agency many deaths take place, and yet a physician states that he does not know of monstrosities or deformed pelves, but attributes the misfortune to malpositions; a greater number of half-breeds is to be found among them, and the resulting disparity between the child and its mother may be a cause of the trouble; again it may be the less active lives which they are supposed to lead, and the consequent cross-births. Dr. Williams has observed that the Pawnees are more exempt from accidents than the Menomonees, and inquires whether it is on account of the squatting posture assumed by the Pawnee women in labor; I should rather ascribe it to the more active life led by the Pawnees, and the less frequent intercourse of their squaws with the whites.

We see then certain differences and an increase of the difficulties of labor as civilization is neared. How different are the conditions upon which I have laid stress as existing among savage tribes, from those which we find in our centres of luxury! People intermarry regardless of difference in race or frame of body, and the consequence is the frequent disproportion between the head of the child and the pelvis of the mother. In addition, the system suffers from the abuses of civilization, its dissipations, and the follies of fashion. On account of the idle life led, and the relaxed condition of the uterus and abdominal walls, there is a greater tendency to malpositions; additional difficulties are presented by the weakened organization, and the languid neurasthenic condition of the subjects in civilized communities. We do, however, sometimes find in our cities, more frequently in our rural districts, strong hardy women, who lead more active lives, and who pass through labor with an ease and rapidity much more like that displayed by their savage sisters.

I can hear but little of labor troubles from physicians who are in contact with our Indians, as they rarely have the opportunity of witnessing a confinement; it is only in the most desperate cases, and hardly then, that even the Agency Physician is called in, and Indians are extremely reticent upon such topics; but I should judge from the robust health and hardiness of their squaws that mishaps are few. The most serious accident which occurs is the shoulder presentation, and that must necessarily prove fatal. This rarity of accidents is most fortunate, since neither our own Indians nor other savage tribes have any means of meeting them, save incantations or the howling of the medicine men.

The Papagos and some other tribes seem to have a philosophical way of regarding accidents in labor; they think that the character of the fetus has a good deal to do in causing the obstruction, and the more severe the latter the worse the former; hence, they deem it better for mother, child, and tribe that the mother and child should perish, than that so villainous an offspring should be born and grow up to do injury to his people.

Rigidity of the perineum has been occasionally mentioned, and in a case of this kind among the Dakotas the attending squaw relieved her patient by inserting her open hands, placed palm to palm, within the vulva, and making forcible dilatation, an assistance which few other uneducated people seem to have the knowledge of rendering. No attention being paid to the perineum, rupture is probably frequent; I know this to be a fact only of the negroes of Loango, as the information gathered by travellers does not usually extend to these subjects.

The prolapse of an arm is managed, among the Nez-Percés, and undoubtedly among other tribes also, just as it is by some of our midwives, by pulling upon it, as they do upon any part which chances to present.

Prolapse of the uterus is not unusual in Mexico and quite frequent in the interior of Russia. The Sclavonians, for instance, who are not unlike some of our Indians, endeavor to shake the child out of the womb in cases of prolonged labor; the natural consequence is that both the child and placenta drop out, to be followed not unfrequently either by prolapse or inversion of the uterus. In Russia, these accidents are so common that people are always prepared to correct them; the poor sufferer is at once brought into the bath-room and stretched upon a slanting board, the feet higher than the head; then the board with the patient upon it is successively raised and lowered in order to shake the uterus back into the pelvis, precisely as one would shake a pillow into its cover.

Hemorrhage, of which I do not often hear, is treated in some instances by sousing the patient into the nearest stream, or rather more tenderly by the Santees, where the attendant gives the patient a shower-bath by filling the mouth with water and blowing it over the abdomen with as much force as possible until the flow of blood ceases.

Whatever may be their social condition, primitive people preserve a certain superstition as regards woman and the functions peculiar to her sex. In many tribes it is customary to set apart a hut or lodge to which the woman is banished during the period of the menstrual flow; so also the child-bearing woman, as a rule, seeks a quiet nook away from the camp, or if the habits of the people are more sedentary, she is confined in a separate lodge a short distance from the one occupied by the family. Sometimes a house is erected for this special purpose, common to the entire village. Again, if better situated, she may have a separate room in her own house, sacred for these occasions.

On the Sandwich Islands, on the contrary, the confinement is more public and the performance is witnessed by all who happen to be about. The same lack of privacy prevails among the Mohammedans of India, who are as careless of the privacy of their confinements as they are of their copulations.

The wilder tribes of Southern India allow female relatives and friends to crowd around the woman, as do the Aborigines of the Andaman Islands. The Pahutes, the Brulé-Sioux, and the Umpquas conduct the labor in the family lodge, and the sympathizing as well as the curious crowd around at will. A very good idea of such a scene is given me by Dr. Ed. V. Vollum, Surgeon U. S. A., who attended the wife of an Umpqua chief. He states that he found the patient lying in a lodge, rudely constructed of lumber and driftwood; the place was packed to suffocation with women and men; the stifling odors that arose from their sweating bodies, combined with the smoke, made it impossible for him to remain in the apartment longer than a few moments at a time. The assembly was shouting and crying in the wildest manner, and crowding about the unfortunate sufferer, whose misery was greatly augmented by the apparent kindness of her friends. Not much better were the half-civilized Mexican inhabitants of Monte Rey in early days: but even in these cases where such publicity is permitted, men are, as a rule, excluded.

Commonly labor is conducted most privately and quietly; the Indian squaw is wont to steal off into the woods for her confinement. Alone or accompanied by a female relative or friend she leaves the village, as she feels the approach of labor, to seek some retired spot; upon the banks of a stream is the favorite place the world over, the vicinity of water, moving water, if possible, is sought, so that the young mother can bathe herself and her child and return to the village cleansed and purified when all is over. This is true of the Sioux, the Comanches, the Tonkawas, the Nez-Percés, the Apaches, the Cheyennes, and other of our Indian tribes.

In winter, a temporary shelter is erected in the vicinity of the family lodge by those who make the solitude of the forest their lying-in chamber in milder weather.

The Chippewas, as well as the Winnebagos, also follow this custom. The natives of the Caucasus, the Dombars and other tribes of Southern India, those of Ceram, the inhabitants of Loango, of Old Calabar, and many of the African races, are delivered in this quiet way, and the women are not only kept apart from their husbands and the villagers during their confinement, but for weeks afterwards. The reason why we know so little of Indian labor is the great secrecy which they observe regarding such matters, and their extreme reluctance to speak to inquisitive whites of these subjects which are to them enshrouded in a veil of superstition and mystery.

Some of the Sioux tribes, the Blackfeet and the Uncpapas, are in the habit of arranging a separate lodge, generally a temporary one, for the occasion, as also do the Klamaths, the Utes, and others. The Comanches construct a shelter for parturient women a short distance outside of the camp and in the rear of the patient's family lodge. This is made of brush or bushes, six or seven feet high, stuck into the hard ground, the branches intertwining so as to form a circular shelter about eight feet in diameter, an entrance is provided by breaking the circle and overlapping the two unjoined ends. In a line outside the entrance are placed three stakes made from the stems of small saplings with the bark left on; these are set ten paces apart and are four feet high. Inside the shelter are made two rectangular excavations in the soil, ten to eighteen inches in width, with a stake at the end of each. In one hole is placed a hot stone, in the other a little loose earth to receive any discharges from the bowels or the bladder. The ground is strewn with herbs. This is their usual mode of constructing a shelter when in camp, and at other seasons, when boughs fail them, pieces of cloth are used to cover up the gaps, or else the leafless brush is covered with skins; but on the march some natural protection is usually sought, or one is hastily extemporized out of robes with, perhaps, a lariat

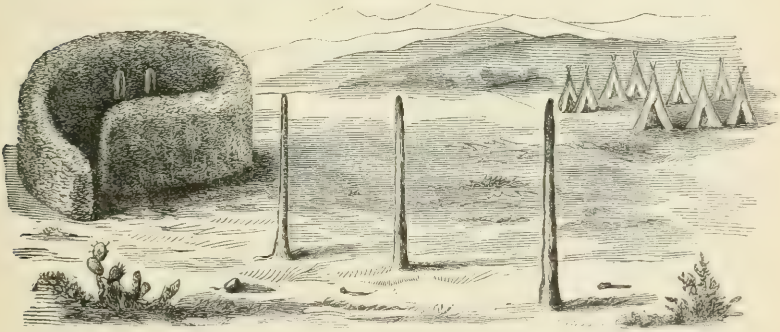

FIG. 1.—Temporary shelter for the lying-in woman, Comanches.

attached to the nearest tree for the woman to seize during the pains.

The Indians of the Uintah Valley Agency observe a similar custom. At the first indication of labor-pains, the parturient leaves the lodge occupied by her family, and a short distance from it erects for herself a small "*wick-e-up*," in which to remain during her confinement, first clearing the ground and making a slight excavation in which a fire is kindled; rocks are placed around the fire and heated, and a kettle of water is kept hot, from which copious draughts are frequently taken. The "*wick-e-up*" is made as close as possible, to prevent exposure to changes of temperature, and to promote free perspiration. Assistance is given by squaws living in the neighborhood, but no particular one is chosen, nor is any medicine-man called in to render aid. In Ceram, a temporary hut is hastily built in the woods, and in some parts of the interior of Russia a separate house is provided, as among our own Indians; such is also the custom of the Samojedn. The Gurians make use of a special room in the house; the apartment set aside for this purpose has no flooring, but the ground is plentifully strewn with hay, upon which the bed is made; above this a rope is fastened to the ceiling for the woman to grasp when in pain. The usual and favorite place of confinement for the Laps and other polar tribes is the bath-room.

As the place of confinement varies, so does the couch upon which the labor occurs. Some care is devoted to its preparation by all people, even the Susruta, that ancient system of midwifery, tells us that " the parturient should lie on her back upon a *carefully spread couch*, that a pillow should be given her, the thighs should be flexed, and that she should be delivered by four *aged and knowing midwives*, whose nails were well trimmed."

The women of ancient Greece were delivered upon stools; the large arm-chair is still at home in the East, while in Syria a *rocking* obstetrical chair is used. The Kootenais employ a box covered with buffalo robes; the Sandwich Islanders, a stone; and certain of the tribes of Finns and Mongols, as well as many of our Caucasian race, look upon the lap of the husband as the best obstetrical couch. Many of our Indians use nothing but the bare ground, others a buffalo robe or old blanket spread upon the floor of the *tepee*, or else some dried grass and weeds; in one way or other, however, they make a soft and comfortable couch upon the ground. A common method is to place a layer of earth beneath the buffalo robe upon which they are confined. Thus F. F. Gerard tells me that the Rees, the Gros-Ventres, and the Mandans, lay a large piece of skin on the ground, over which is strewn a layer of earth three to four inches deep, and upon this is spread the blanket or skin on which the parturient kneels.

The Japanese make their preparations for the coming event in the seventh month, so as to be sure of being in time. The bed which they then provide consists of a mat of straw about three feet square, on which is spread a layer of cotton or cloth. This simple arrangement upon which the patient is to be delivered is then set aside to be available at any emergency.

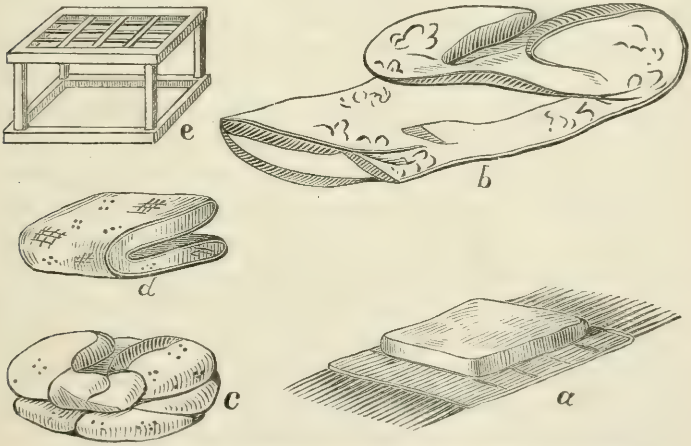

Fig. 2.—Japanese lying-in couch and supports used in childbed.

The above figure represents this mat, together with the mattrass upon which it is laid, and the cushions used to support the back during the puerperal state. I need enter no further into this subject, as I have frequently referred to it, and have treated of it fully in my paper on Posture.

With regard to the *assistants* who aid the parturient woman, there is some difference in the customs of the various races. In many cases she has no help of any kind. As a rule, the assistants, if any, are females, relatives, or neighbors, and the aid they give the sufferer is about the same as that which is too commonly obtained by her more civilized sisters, the world over, often worse than none at all. Occasionally they have professional midwives, whose qualifications depend chiefly upon their age or the number of children they have borne. In case that the patient is a lady of quality, the wife perhaps of a chief, or if the labor prove a very difficult one, the prophet or medicine man is summoned. The physician is mistrusted and is only consulted in the most desperate cases; the medicine man is aware that the forceps of his white brother are more efficacious than the rattling of the tum-tum, and, actuated by that same professional jealousy which is occasionally observed in more civilized communities, he uses his influence to malign the stranger, and glorify himself.

In Siam and in Ceram, in parts of Africa and South America, among the Indians of Canada and some of our own—the Tonkawas, the Cheyennes and allied tribes, the Arrapahoes, and the Cattaraugus, there is no class corresponding to our midwives, and the patient has no help whatsoever; but usually relatives and friends aid each other, or there is some assistance rendered by the habitual old woman. This is true of the savage tribes of the vast Russian empire; each village or settlement has an old crone who possesses the power of second sight, and by this gift and other similar means drives away disease; but above all haunts the lying-in room, where she causes much harm to both mother and child by her rude and ill-timed manipulations. Other tribes have their particular old women, who, for various reasons, are supposed to be specially skilled. Thus the Navajos and the Nez-Percés have their *sages femmes*, and in Mexico there are midwives who are acquainted with medicinal herbs and their properties. The Indians of the Quapaw Agency, those in some parts of Mexico, and many of the Pueblos have women who make this a specialty. So also the Clatsops, the Klamath, the Rees, the Gros-Ventres, and the Mandans.

Whenever a midwife or some other old woman assists the progress of labor, one or more younger women are always on hand to perform the actual work, whilst the midwife sits in front of her charge to receive the child. In Syria, the assistant is an old woman who learned her trade by practising with her mother who was a midwife before her; it is necessary for a woman there to practise for a long time before she thoroughly gains the confidence of the people. We find midwives also in Japan, in parts of India, where in ancient times only women assisted the parturient, whilst in ancient Egypt difficult cases were attended by surgeons specially skilled in midwifery, as it will be remembered that they had their specialists as well as we of the present day. Susruta speaks of *midwives* attending his patient, and the mention of midwives in Exodus i. 19 implies that these good women were as unskilful thirty-five centuries ago as they can still be found at the present day. From all that we have seen it appears that the *Yi* of India, the *Dye* of Syria, the herb-knowing hag of Mexico, and the midwife of the Bible are very much the same in their habits, their qualifications, and their knowledge. It is the same habitual old woman who figures in all countries and at all times, and with whose peculiar qualifications we are quite familiar. In cases where the midwife is at a loss, the aid of the medicine man is sought. The Baschkirs rely upon their "devil-seer" who discovers the presence of the evil spirit and drives him away if rewarded by the present of a sum of money or a fat sheep. Among others a priest is called who hastily mumbles a few verses of the Koran, spits into the patient's face, and leaves the rest to nature.

The *assistance* which is rendered to the parturient woman is very simple and consists entirely of external manipulations, support of the patient in whatever position she may be confined, together with compression of the abdomen for the purpose of expressing the child: in addition to this, the incantations of the medicine men as well as other means, by which they endeavor to act upon the imagination of the patient, must not be forgotten. How little actual help the lying-in woman receives, and how limited is their knowledge of correcting malposition or other of the accidents of labor, will be readily perceived if we state that but few of those primitive people, whose habits we have so far considered, ever manipulate within the vagina. I have positive statements to this effect from the Indians of the Pacific coast, the Umpquas, the Pueblos, as well as the natives of Mexico. The introduction of the hand into the vagina or into the uterus for any definite purpose is a manipulation unknown to the natives of other countries as well. At east I never see it referred to unless it be in a few instances for the purpose of distending the perineum or of removing the placenta from the vagina, which must remain if retained *in utero.* The midwife or older woman in attendance, as we have seen, usually receives the child, whilst the younger women support the patient, steadying the pelvis, resting her head and shoulders, and holding her arms and legs according to the position which she assumes. The younger women also compress the abdomen and rub the body wherever directed. The most reasonable of all their means of assisting the patient in her labor is the steady compression of the abdomen and the following down of the child in its descent. This is a feature common to the red, yellow, and black races, be it by compression of the fundus, by the encircling arms of the husband upon whose lap the patient rests; be it by the hands of one of the female assistants sometimes from behind, sometimes from the front; or by a broad cloth or binder (California Indians and the natives of Southern India) which an assistant tightens during each pain—a treatment which has not yet lost the favor of obstetricians and was once quite popular. There are some who still place a towel about the abdomen of their patients, thinking to assist the descent of the child by the pressure exercised; it serves both to correct the direction of the child's descent and to hasten its passage. In its extreme and worst feature we see this method of treatment exemplified by the Siamese who seek to force the expulsion of the fetus in difficult cases by permitting the attendant to trample upon the abdomen of the patient who is lying prone upon her back.

[To be continued.]

NERVE PAIN IN GYNECOLOGY AND THE REST TREATMENT.

BY

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THE better to illustrate the meaning of this paper I may be allowed to cite two cases, the first of which was published in the *Maryland Medical Journal* of May 1st, 1881. They will be sufficient to cover the ground without dwelling upon other cases of similar nature, as they represent the extremes of bodily habit—the one being thin, sallow, wan, and extremely nervous; the other being stout, phlegmatic, and well-nourished.

About two years and a half since, I was consulted by Mrs. B., who gave me the following history:

Age twenty-eight; married; no children; above the medium height; sallow complexion; face care-worn; body emaciated; the parietes sunken, and the prominences of the hip well-marked; weight 120 pounds. She had been all her life a resident of Gloucester Co., New Jersey, and different members of her family had suffered with intermittent fever. Two brothers and a sister are now victims of malarial jaundice. No inherited disease. She had been a strong, healthy woman, performing the functions of her sex with regularity and sufficiency. Had been fond of society, and had indulged herself in dancing and late hours. Circumstances having rendered it necessary for her to assume the responsibility of her own support, she sought and obtained a position as school teacher. This necessitated long drives or walks during all seasons, and she was much exposed to the inclemency of the weather. The mental strain to a conscientious woman, desirous of impressing correct habits upon her pupils, was a great one, and from this time she began to lose weight, to suffer from nervousness and insomnia. From this time, too, so far as she remembers, her menstruation became scant, irregular, and was sometimes absent for several weeks. She has vague pains in the back and loins, the nature of which she did not understand. She was troubled with constipation, headache, and extreme nervous exhaustion. Walking was difficult and sometimes impossible. All these symptoms became aggravated with the advance of time. Two years before her marriage a terrible grief came to her, and from that time she began to grow worse, so that upon her wedding-day she was a mere skeleton, without physical energy. Her complexion was extremely sallow, and the conjunctivæ yellow. She has not had, so far as she knows, any attack of ague; neither has she suffered from the pains of an obstructive jaundice. Her icterode appearance is intensified at each menstrual period. She has rectal and vesical tenesmus, unbearable backache. Inability to stand long, though walking is much easier than standing. There is pain in the region of the right ovary and down the right leg.

Examination revealed a short vagina, with a retroverted and somewhat retroflected uterus. The cervix was doughy and swollen, and the region around the neck of the bladder was extremely sensitive. During her treatment in Washington, which extended over a period of two years and more, I had the honor of consulting with several of our leading physicians. At first we endeavored to reduce the version by means of the sound within the cavity of the uterus. (This is always a dangerous experiment, even in the hands of the best gynecologists, and I was somewhat adverse to its use.) The pain following this procedure was of course excessive. A Smith's modified Hodge's pessary was applied, the patient being advised to rest in Sims' position, with a pillow under the hips, to suspend the clothing from the shoulders, to use hot vaginal injections, and to keep the bowels open. About a week after the introduction of the pessary, just before or subsequent to her menstruation, a lancinating, excruciating pain set in, which made the removal of the pessary necessary. The pain was at first referred to the right iliac fossa. It then extended up the right side and along the greater curvature of the stomach. There was intense nausea and vomiting, which refused to yield to treatment. There was supra-pubic tenderness, but no fever. The pains were intermittent, coming on at intervals of ten minutes, vomiting setting in with the subsidence of the pain. This first attack lasted twenty-four hours, leaving the patient much prostrated, and so sore that she was unable to move herself in bed. Her appearance was as one suffering with an acute attack of icterus, so much so that one of the physicians supposed that she had an obstructive jaundice, as the pains simulated those of gall stones. Believing the cause to be due to artificial irritation of the womb, a pessary was not thereafter applied until she was removed to Philadelphia; neither was any subsequent effort at reduction made by the sound. The peculiar sallowness I attributed to the reflex action of the sympathetic. Each month, with one or two exceptions of intervals of two and three months, these peculiar pains returned, always with increasing severity, and extending over longer periods of time. Nothing quieted them but *very* large hypodermic injections of Magendie's sol. of morphia with atropia, followed by opium suppositories. Her prostration and general condition became alarming. The womb was supported by pessaries of medicated cotton soaked in the glyc. of tannic acid. Once each month, midway between her period, a mixture of chromic acid and water, partes æquales, was carried up to the fundus. The cervix was bled and covered with iodo-tannin.

The patient was given iron and bark, and later the antacrid mixture. Rest, fresh air, and nourishment were enjoined. Still, with each month the intense pain introduced itself with its following of nausea and exhaustion, with days and days of muscular soreness and of general "yellowness." The patient would often burst into a flow of tears without provocation. Her memory and eyesight became defective. A chance call would so excite her that she could not sleep. Reading, writing, or sewing, all irritated her nerves. Finally, after lingering in this condition for so many months, she consented to go to Philadelphia and have a consultation with Dr. William Goodell. I had already advised the doctor very fully of the nature of the case, so that upon our arrival he was prepared with a diagnosis, in which he was sustained by a thorough examination. The local trouble he made out to be a congested ovary, a short vagina with well-marked retroversion. The constitutional disturbance he thought was a neurasthenia, of which the local disease might have been the primary cause, but which had been intensified by grief, and by the incessant worry of a teacher's life. The pain was purely and simply a nerve pain, but upon what physiological condition to be explained in the present stage of scientific medicine, no one could say. The jaundiced condition, in part, perhaps, due to malaria, was chiefly owing to a spasm of the gall-ducts, due to the nervous influence of pain and grief—nerve shock. Dr. Goodell argued with much force, and with the logical soundness that comes of large experience and close observation, that the profession were prone to attribute every symptom to uterine derangements, when such exists, forgetting complications and intercurrent diseases which may also obtain.

"How often," said he, "have we seen women with complete procidentia, or with other forms of uterine displacement much more complex than your patient's, going about their daily affair, with apparently little inconvenience, and certainly without a tithe of the physical prostration manifested in the case of Mrs. B."

He advised the rest treatment, and argued so soundly that I seconded him with great sincerity, and Mrs. B. was induced to place herself in his hands. A suitable room was obtained and a well-trained nurse was engaged. She was to go to bed, and to remain there absolutely for from four to six weeks. She was allowed no communication with the external world; not even letters, except from her husband, and these were limited to one per week. She could see no one but her professional attendants. She was to make no movement of herself. In short, the most perfect REST, physical and mental, was the basis of treatment. For the first two days her diet was limited to skimmed milk; a glass every two hours. Then her regular meals were permitted with six glasses of rich milk per diem. Dialyzed iron in gradually increasing doses, with an aperient pill, as occasion demanded, and Hoff's malt were all the drugs used, with one exception, when the bichloride of mercury and arsenic were given, to overcome a malarial complication, which Dr. Goodell thought might exist, owing to the sallow complexion. The treatment began February 15th, 1881. After her menstruation for that month, electricity was used by Dr. Crandall. Galvanism over the liver and ovary, with the faradic current over the trunk and extremities. The general current was obtained by placing the carbon point at the occiput, and the other pole of a Gaiffee battery in a basin of salt water, in which the feet of the patient had been immersed. Massage was also inaugurated. The influence of the electricity and massage was immediate and gratifying. Natural and refreshing sleep, an absence of cold hands and feet, and a general feeling of comfort followed in their wake. The muscles of the back and extremities developed rapidly. The pain in the side disappeared. The complexion became clear, and the digestion perfect. The milk, though taken in large quantities, never occasioned the least discomfort. Then followed the Swedish movements, so arranged as to strengthen the muscles most needing improvement. Meanwhile, Dr. Goodell was gradually rectifying the local dislocation. The womb was slowly tilted into position and the vagina lengthened by means of a long celluloid pessary.

On March 29th, the patient went to Atlantic City for two weeks. There was then only a slight sinistro-lateral uterine deviation, the fundus was well up, and the vagina increased in length. The patient had gained three inches around the waist, an inch and one-half around each arm and leg, and had gained about ten pounds in weight. Her complexion was much clearer. She had no backache, no pain, no depression. At this time of writing she weighs 132 pounds, and is still gaining. She feels perfectly well, is able to walk quite long distances without discomfort, and is very buoyant in spirits. She takes her iron regularly, with nux vomica after meals. She drinks six glasses of milk per diem, and every evening goes through the movements. After exercising in any way she rests for ten minutes in the knee-chest position, and then lies down for a half-hour. During the entire treatment she has been threatened but once with one of her old attacks, and this was frightened away—thus demonstrating conclusively that she had no gall stones.

The interesting features of the case are the pain and yellow complexion. Of the jaundice produced by mental emotion, Dr. Goodeve thus writes in Reynolds' System of Medicine: "There are numerous cases on record in which this appears to have occurred. The mental emotions which have been known to bring on jaundice are grief or anxiety, anger or fright. It has been reported in certain cases to have appeared very suddenly, immediately upon the occurrence of the mental emotion. The older writers supposed it to be due to spasm of the gall-ducts or common duct. It is, however, hardly possible to conceive a spasm of the common duct, which would be persistent enough to arrest the bile sufficiently long for absorption. This jaundice would be attributed to suppression of secretion from deranged nervous influence by some writers, and by Frerichs and others to increased formation and absorption of bile, or to diminished metamorphosis from the same cause. Dr. Bence Jones shows how this form of jaundice might arise, owing to increased formation of bile through nervous disturbance, especially if at the same time there was interference with the condition of the blood. Referring to the experiments of Claude Bernard, on the secretion of the salivary glands, he says: "It is very probable that the sympathetic nerve in the liver if atonized would stop the circulation by contracting the small blood-vessels, and this would diminish the secretion of bile, whilst the branches of the pneumogastric which enter the liver, when stimulated, would relax the small blood-vessels, and thus cause a more rapid circulation through the liver, from which an excessive formation of dilute bile would result." Dr. Murchison thinks that this jaundice is due to diminished metamorphosis in the blood. The disorder has appeared more frequently when the cause has operated directly after a meal, and preceded by a sense of weight or uneasiness at the epigastrium, and a feeling of sinking and difficulty of breathing. Bamberger attributes the symptoms to a nervous condition of the stomach and duodenum, which causes catarrhal state of the mucous membrane of the duodenum. . . ."

It has been offered as an objection to the rest treatment, that few patients could submit to the isolation; that separation from husband and family would greatly magnify the mental irritability. This objection seems to be plausible, and I would, myself, have entertained it, had I not seen women of the most delicate and sympathetic nature gradually yield to it, and profit by it. For the first few days the home-sick feeling largely predominates, but this soon gives way to the euthanasia that comes of *perfect rest.* A life into which no disturbing element can enter, and into which the hope and assurance of ultimate well-being are controlling factors, is so rare that only they know its charm who have experienced it.

The second case came to me about eighteen months ago. The facts are as follows:

Mrs. M., thirty-three years of age, the mother of two children, weighs one hundred and fifty pounds, is robust and apparently the picture of health. Light-blue eyes, white, delicate skin, and fair hair.

Prior to her marriage and subsequently she has indulged largely in social conviviality. Entertains frequently, dances often, and finds her greatest enjoyment in the whirl of excitement incident to her position. Is not given to over-sexual indulgence with her husband, although she states that her mode of life, and the highly seasoned condiments of her table, all tend to create irritation, and unnatural amativeness. The actual, even though legitimate consummation, she delays, fearing the weakness that invariably follows. She has practised the means common among fashionable people for limiting the number of her offspring. A person of large wealth, position and education, she lives in the intoxication which these accessories demand, because she dreads the relapse of a quiet life. With each menstrual period, she has sharp, neuralgic pains, commencing over the right ovary, extending down the right thigh and half-way around to the spine. These are accompanied with a somewhat persistent nausea, and great prostration. At the intermenstrual periods she has vague, ill-defined wandering pains, in various parts of the body. She has some vesical tenesmus with irritability. Bearing-down pains with backache. Examination revealed a relaxed perineum, and a slightly retroverted uterus. Only this, and nothing more. Conditions entirely insufficient in themselves, in a person of her physique, to account for all of her symptoms. In both cases the microscope showed a diminution in the number of red corpuscles of the blood.

These cases, which might easily be multiplied, will find their parallels in the experience of every gynecologist. So familiar are the symptoms that they only attract attention as being intercurrent with a local disturbance, and are generally lost sight of altogether in the special consideration of the uterine malady. Exceptionally does any gynecologist view them as manifestations of a distinct complaint. Yet if every specialist were to consult his note-book, he would cite instance upon instance, where the pains persisted after the local difficulty had been relieved; nay, more, he would be able to find but remarkably few cases in which the vague, anomalous pains subsided coincidently with the remedy of the uterine dislocation. The rapid strides that gynecology has made within a few years, the advance which it must continue to make, and the laudable enthusiasm of its disciples, while productive of great general good, have not been without a measure of harm. There is a tendency to meddlesome interference in many cases that would do better if left alone, and a proneness to attribute *all* of her sufferings to a uterine cause, in the woman who may have some trouble with her sexual organs. The womb may get well, but unless there be a *general* cerebro-spinal reaction, the woman is not well, and will suffer equally as much as when she began treatment. It is true that the local derangement may have been primary, but it has set up a new disorder, equally serious, and this must be healed separately and distinctly. It is a practice as common as it is unscientific and cruel, to attribute all of these manifestations to the womb, and to suppose that they will subside with the alleviation of the local disturbance. So far as I can judge, nerve pain is most frequently associated with uterine version, and only obtains in those delicate, sensitive women who have been acquainted with grief, or who have abused themselves in fashionable dissipation. Just as some forms of hysteria are met with in young girls who have from early youth shouldered the responsibilities of a household, and submitted, without a murmur, to the complaints and unkindnesses of other members of the family who were glad to shift the necessary cares of a life upon a younger sister, so do we sometimes find the existence of nerve pain and uterine version in these overworked and much abused young women. This nerve pain is the cry of the whole cerebro-spinal nervous system, rebelling against the extra tax put upon its powers, and demandiag rest and nutriment. It indicates a condition of neurasthenia, and is associated with dyspepsia, inability to concentrate the mind upon a given subject, defective eyesight, gloominess, constipation and insomnia. The primary condition and these, its accessories, often exist independently of any womb complication, and, on the other hand, thousands of women with dislocated wombs go through life with a certain measure of comfort, without any nervous irritability. In any logical diagnosis, we must consider every detail of the patient's life, and not hastily prejudge the case as one solely of the uterus. Sudden grief, a wifely anxiety for the conduct of a husband, domestic worries, griefs and anxieties, literary ambition, all conspire to reduce a sensitive nervous system to a condition of prostration. With the loss of appetite comes emaciation. The nerve-centres, deprived of their blood-supply, begin to ache and participate in the general disorder. This influence is propagated along the nerves themselves. You may relieve such women of their retroversion or anteversion, but you will not cure their nervousness. Indeed, you aggravate the case by proceeding at once to local interference. What these cases demand pre-eminently and primarily is *rest*—absolute rest. Their whole system is crying out for it. Their vital force is exhausted. They have been living at fever-heat for years. The brain that throbs and pulsates, and feels as if bound around with a vice, the back that lacks strength, and is a constant reminder of its existence, the muscles that groan under exercise, all need perfect immunity from anything that may distress them. The rest must be perfect, not partial. For this reason it is advisable that the patient should be removed from the distractions of home, and for a longer or shorter period she should be allowed no communication with the outside world. She should go to bed, and the nurse should be charged to allow her to make no movement of herself. She should be turned or raised, fed and washed by her attendant—all noises, so far as it is possible to regulate them, must be forbidden. She should not read or sew, neither must she indulge in gossip or conversation that will entail mental effort. The diet should, for the first few days, be solely milk, in as frequent administration as the patient can bear. This is not only nourishing, but acts very soothingly upon the nervous system. Then massage may be inaugurated. Under the influence of such gentle manipulation the most aggravated forms of insomnia will often yield. Little by little we may add electricity and the Swedish movement. So, gradually but certainly, we build up the system, and prepare the way for the local interference which may be necessary. Can we obtain this perfect brain rest? Will the mother cease in her anxiety over an infant child? Will the young wife surrender her constant thought of her husband? Will the highly sensitive, over-strained nervous energy of a woman ever yield itself unresistingly to such treatment? Not always at first; in rare instances, not at all. In the great majority of cases, however, the resistance terminates after the first week. The worn-out brain gives way to the intoxication of absolute freedom from work, and from sheer weakness, rests. The body yields first, then the mind insensibly participates in the general repose. No physician, no one but the suffering woman herself, can possibly know the deliciousness of this perfect rest and freedom from anxiety. It seems to be Utopian—actual demonstration has proved it to be real. It is here too, with our patient in bed, gradually building up her nervous system, that we can best deal with the uterine difficulty, and with little shock to the woman. Her whole treatment has prepared her for it, and we will have the satisfaction of seeing her acquiring a degree of health which could not have resulted had we proceeded at once to overcome the version.

HOW TO PREVENT RUPTURE OF THE PARTURIENT UTERUS.

BY

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New York.

(With five woodcuts.)

IN endeavoring to prevent this accident, it is necessary to have a clear idea of the process by which rupture of the uterus is brought about. Most of the occurrences in obstetrics are so well understood that the principles according to which parturition takes place are obvious to all; but for some events the laws are not yet recognized, and many accoucheurs are inclined to think that they depend entirely upon accident. One of these events is rupture of the uterus. Formerly rupture of the uterus was regarded as an appalling accident by which the accoucheur was surprised, as by a thunderbolt on a fair summer day, and this fatal contingency was accepted as the Mohammedans accept their Mash-Allah. Although Carl Braun (Lehrbuch der gesammten Gynäkologie, Wien, 1881, page 695) seems to believe that he and many others had a proper understanding of the mechanism of rupture of the uterus, every one, however, who is acquainted with literature will find that Schroeder is more candid in giving the entire credit to Bandl who first started the correct idea. In the former editions of his book, Schroeder expresses the current opinion by saying that rupture of the uterus occurs so unsuspectedly that nothing can be done to prevent this accident. By other accoucheurs either no explanation for the rupture is given or the explanation is as vague as that given by Barnes (Lectures on Obstetric Operations, 1876), page 336: "If a muscle is not strong enough to accomplish the object for which it contracts it becomes fatigued and relaxes. It is only when a sudden strain or injury is inflicted at the moment of the contraction that the muscular fibres are liable to be torn. The uterus is no exception to this law. We see how it acts in ordinary labor. It contracts in the direction of its long axis, tending to shorten itself, pulling the os towards the fundus. So acting the os is partly pulled open, partly dilated by the hydrostatic pressure of the liquor amnii or of the protruding part of the fetus. The effect of the hydrostatic pressure in dilating the os is marked in ordinary healthy labor. If it fail through too early discharge of the liquor amnii and there be obstruction, so that the fetus is slow in engaging in the cervix and in descending into the pelvis, dilatation is slow and is ultimately effected mainly by the continuous pulling up of the cervix by the action of the longitudinal uterine muscles. In either case, so long as the cervix, the part pulled upon or stretched, yields, there is no fear of laceration. But if the cervix will not dilate and the uterus continues to contract, as it will do under excito-motory stimulus, the fetus being driven down violently upon its lower segment, the uterus will lacerate here. In such a case usually the laceration begins at the edge of the os uteri and extends upwards longitudinally." This explanation, besides being unsatisfactory, is refuted by well-known facts, as we shall see hereafter. Nor is he correct in saying furthermore that the most frequent seat is at the junction of cervix and vagina, and that it is almost the exclusive region of perforation from pressure and from internal violence, and also the most common from external violence. C. Braun (l. c.) among 87,074 cases of labor has observed thirty-seven cases of rupture, and in all cases the rupture commenced at the cervix and extended either to the body of the uterus or to the vagina. Tyler Smith insists that the irritation caused by the manual examination of the os uteri is sometimes enough to cause rupture. This could be believed if the examination were made by passing the whole hand through the orifice. But if the examination is made as it is usually done, the possibility of this cause must be denied. Playfair (text-book, Americ. edition, 1880), page 427, says: "The progress of modern research tends more and more to the conclusion that the cause which leads to the laceration could only have operated because the tissue of the uterus was in a state predisposing to rupture and that it would have no such effect on a perfectly healthy organ. What these predisposing causes are, and how they operate, is yet far from being known, and the subject offers a fruitful field for pathological investigation." Many cases are recorded in which a pathological alteration is accused as the cause of rupture, but in these cases no reference is usually made to the time when the uterus was examined. If the woman dies some days after labor we will find fatty degeneration, as Klob has stated; but if the woman dies before the uterus has undergone the normal retrograde metamorphosis, we will not find a pathological alteration of the tissue of the uterus, as Cohnheim, Bandl, and many others have demonstrated. J. S. Parry, l. c., says: "The uterine tissue presented no evidence of disease; it was examined with the microscope by Dr. Bertolet, who states that it was healthy." Playfair further says: "Some have believed that the impending occurrence of rupture could frequently be ascertained by peculiar premonitory symptoms, such as excessive and acute crampy pains about the lower part of the abdomen due to the compression of part of the uterine wall; these are far too indefinite to be relied on, and it is certain that the rupture generally takes place without any symptom that would have afforded reasonable grounds for suspicion." Leishman (textbook, Americ. edition, 1880), page 421, says: "We cannot, however, trust to premonitory symptoms. Indeed, in the great majority of cases we have not even the benefit of such obscure signs as have been above mentioned, and thus the climax of the case is attained while we are quite unprepared for a calamity so dreadful." This shows clearly that C. Braun (l. c.) is in error when he says that Leishman and many others had for a long time known that rupture of the uterus depended upon a mechanical cause. I can abstain from further quotations of authors concerning this chapter, as Ames (AM. JOURNAL OF OBSTETRICS, April, 1881) has very elaborately compiled the opinions of many eminent accoucheurs. Ames has also accumulated a large material valuable for the statistician, but I can hardly believe that the practitioner can derive any benefit from the perusal of his article. I am surprised that Ames has not caught Bandl's idea, although he seems to have read the pamphlet. Bandl published six years ago an admirable work on rupture of the uterus (Ueber Ruptur der Gebärmutter, Wien, 1875). His work has met with due consideration where it is known, as in Germany by Schroeder and many others, in France by Tarnier (in the now appearing edition of his text-book). But Bandl's pamphlet is not so well known as it deserves to be, although it has contributed to the explanation of rupture more than any other treatise, so that Schroeder is right in saying (text-book, edition 1881, page 663): "The mechanism of the changes which prepare the occurrence of rupture of the uterus is so simple and so conclusive that, after being first exposed by Bandl, the ancient opinion of the unsuspected occurrence of rupture of the uterus has been generally abandoned." Rupture in this connection includes only those fatal cases in which complete or incomplete rupture of the uterus takes place, the fetus leaves the uterus totally or partially, and the peritoneum is separated more or less from its basis, but it does not include the cases in which rents in the cervix are caused by too early or violent interference. By injudicious interference any uterus can be ruptured, and this cannot be surprising to anybody. Many accoucheurs who had the opportunity of clinical and post-mortem examinations confirmed Bandl's observations. I had as early as 1876 the opportunity to convince myself by my own observations of the correctness of Bandl's explanation of rupture of the uterus. Since that time, as assistant in the Lying-in Hospital in Vienna, I had many cases which were very instructive concerning rupture of the uterus, and all confirmed the correctness of Bandl's views. Of these cases I have made sketches, but as they are not at hand I will use for this article those given by Bandl and Schroeder, which agree completely with my own observations and illustrate exactly the conditions which take place before rupture of the uterus occurs.

I. *Mechanism of Rupture of the Uterus.*

Before proceeding to the consideration of these conditions, it is necessary to bear in mind the conditions of the uterus during a normal labor. The idea of labor includes three other ideas: a body which is to be expelled, a force which is brought into play in order to effect the expulsion of that body, and a passage through which it is expelled. The prime factor in this process is the contraction of the uterus, and therefore it is very important to consider the relation which it bears to the physiological laws according to which the process of parturition is effected. The uterus contracts and tries to expel its contents.

During contraction the uterus would recede upwards over the fetus if it were not attached to the pelvis and if abdominal pressure were not exerted upon the fundus uteri. By these conditions the retraction of the uterus is limited, the uterus presses upon the fetus and the fetus is expelled. During this process the muscular fibres of the uterus become shorter and thicker, while those of the cervix become longer and thinner. The uterine walls which measure at the beginning of labor one-quarter to one-half of an inch become one to two inches thick, and the walls of the cervix become gradually thinner. This condition enables us to distinguish an inferior segment which is thinner than the remaining portion of the uterus (Fig. 1, *ab–a′b′*).

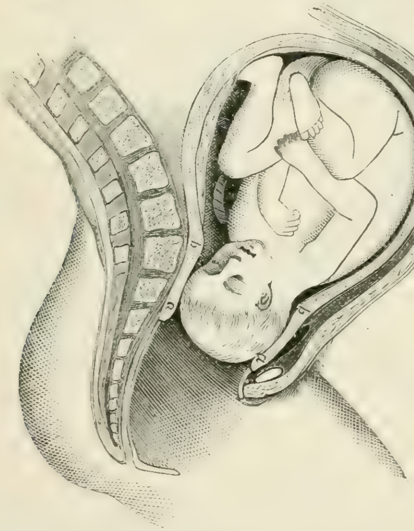

Fig. 1.

Many authors use the expression " inferior segment " instead of cervix. Much has been written by different authors on the formation of the inferior segment.[1] The question whether it is formed by the dilated cervix or the inferior part of the uterus is not yet settled. The old opinion as worked out by Stoltz[2] and still supported by many accoucheurs,

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[1] See Archiv für Gynäk., B. xiv., H. 2. Zeitschrift für Geburtsh., B. iv., H. 2. La Pierre, Inaug. Diss., Berlin, 1880.

[2] Considérat. sur quelques points rel. à l'art des acc., Strassb., 1826.

C. Braun among others (l. c.), is that the cervix remains intact a short time before labor and then commences to dilate, and the whole portion which is described as inferior segment is nothing else than the dilated and attenuated cervix. Bandl (Ueber das Verhalten des Cervix, etc., 1876) has advanced a different opinion, which he has somewhat modified in his later publications,[1] because H. Chiari has demonstrated uteri in which the inferior segment was covered by cervical mucous membrane and not by decidua, as Bandl formerly maintained. Schroeder (l. c.) has found the inferior segment covered by decidua, and asserts that it is formed during the last period of pregnancy and belongs to the uterus and not to the cervix. I have examined several cases and in all of these I found the inferior segment constituted by the cervix alone. Hélie (Recherches sur la dispos. des fibres musc. de l'utérus dével. par la grossesse, avec atlas, Paris, 1864) has found by anatomical investigations that the tissue of the uterus consists of three muscular layers, one external, one median, and one internal. The median layer, the most important in regard to the arrest of post-partum hemorrhage, because it forms a network around the vessels, is entirely wanting in the cervix. This disagreement on the formation of the inferior segment does not interfere with the general recognition of the existence of such an inferior segment which differs by its thinness from the body of the uterus (B). As a result of this difference, a line of demarcation (Fig. 1, *bb'*) between the inferior segment (cervix) and the body of the uterus can be detected by digital examination in an ordinary labor at the level of the inlet, when the orifice is completely dilated. This line remains at the same height till the fetus is expelled. But this is different in cases in which there is a disproportion between the expelling force and the resistance. The disproportion may be caused either by a deformed pelvis or a large hard head, or hydrocephalus, or by unfavorable presentation of the fetus, or by unyielding cicatrices at the uterine orifice or in the vagina. In these cases the line of demarcation advances toward the umbilicus (Fig. 2, *bb'*). The stronger the pains and the more yielding the cervix (inf. segment) is, the more does this line advance upward. Meanwhile a greater or lesser portion of the child is pressed into the cervix, and consequently the cervix is stretched in two directions, transversely by the portion of the child which is engaged in it, and longitudinally in the axis of the uterus by the contractions of that organ. If the cervix is very yielding, and the abdominal pressure which counteracts the stretching by its pressure upon the fundus uteri is ineffectual, as in cases of flabby abdominal walls, a slight disproportion can suffice to produce this condition, but there must always be a disproportion. The longer the uterus contracts and the larger the portion of the child which is pressed into the cervix, the more

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[1] Centralblatt f. Gyn., 1877.

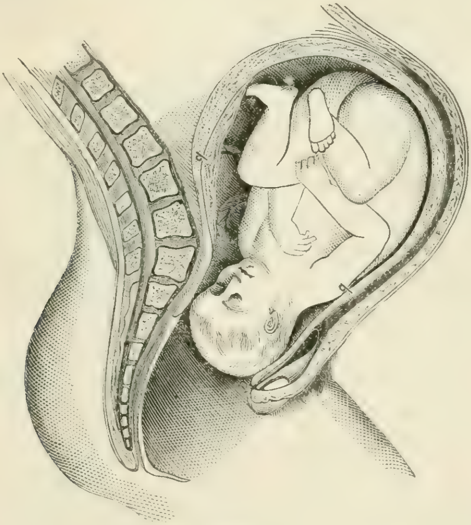


Fig. 2.

is the cervix stretched if the child cannot be propelled on account of the resistance which it meets with. The cervix can be extended to a length of fifteen centimetres and even more and become so thinned out that it is often no thicker than two millimetres and has often been taken for the vagina. The parts of the child which had been pressed into the cervix can be as distinctly felt as if they were covered only by the abdominal walls. But this thinning out of the cervix cannot easily be detected on internal examination. On the contrary, if we are satisfied with the examination of the edge of the external os, we will often find it remarkably thick, because it is edematous on account of the cervix being compressed between the presenting part of the child and the pelvis. This can only be detected when the finger is introduced very high up, but this is not necessary, as the external examination is quite sufficient, for the line of demarcation can easily be detected by external examination, and very often it is distinctly seen, especially during a contraction. In the same degree as the cervix is thinned out, the body of the uterus by the emptying of its contents contracts and becomes thicker, so that its walls often measure five centimetres and more. The whole uterus fits like a cap over the fetus and remains more or less contracted also during the intervals. The ligamenta rotunda are taut, so that they can be felt as thick tense cords, and they remain tense during the intervals.

Corresponding to these local changes we have other abnormal general symptoms. The parturient woman becomes very restless, she groans, her pulse becomes much accelerated; the anxious and painful expression also during the intervals demonstrates that she is not relieved during those periods on account of the straining of the round ligaments. I have heard several multiparæ complain that they did not feel themselves relieved by the progress of labor as they had been in former labors; that on the contrary they felt more oppressed than before. A very instructive history of such a case is that given by Bandl, l. c. pag. 60: "Of the four cases of abnormal extension of the cervix in pluriparæ which I will relate, there is one which was of exceeding interest to me because I thought I had to deal with a rupture, while only the conditions for the occurrence of rupture were present in the highest degree.

No. 1682, forty years old, fifth confinement, conjugata vera 3½ inches, had given birth to three children spontaneously. The fourth was extracted with the forceps. She was received into the Hospital July 28th, 1874, at 12½ A.M., fifteen hours after rupture of the membranes and forty-eight hours after beginning of labor pains. She was utterly exhausted, pulse rapid, face anxious, as it always appears in cases of rupture. The upper portion of the uterus was of uneven hardness, the lower a little softer. A shallow transverse sulcus, one inch below the umbilicus, indicated the boundary between the body of the uterus and the cervix. The uterus was greatly distended and deviated toward the right. Through the abdominal walls could be felt a portion of the head and shoulder covered only by very thin walls, so that I thought of an incipient rupture. By digital examination I found the face in the first position in the cavity of the pelvis; cervix distended, and about one inch of it to be felt; the anterior wall was bluish-red, and on separating the labia could be seen of the thickness of a thumb. I made an unsuccessful attempt with the forceps and, after performing craniotomy, extracted a child weighing 3,200 grammes. On examining now, I found the os internum on a level with the umbilicus, the entire cervix reduced to the thickness of a sheet of paper and enormously distended, so that certainly half of the child had been born into the cervix, and the body and the fundus of the uterus had sat upon it like a cap. The cervix measured on the anterior wall seven and one-half inches, two inches of which were intravaginal, on the posterior wall it measured six inches. The woman left the hospital fourteen days afterwards.

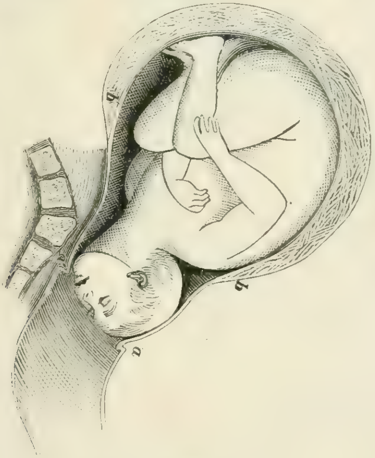


FIG. 3.

In this case everything favored the occurrence of rupture of the cervix, and a contraction of the uterus, or strong pressure by the hand of the operator or an instrument, would have sufficed to induce it."

When the conditions as described above are arrived at, the cervix is extended to the utmost and rupture is very imminent; the next contraction may produce rupture. The more yielding and elastic the tissue is, the more the cervix can be put on the stretch without rupturing; but for every tissue "*sunt certi denique fines quos ultra*" it cannot be stretched. Rupture can only be prevented by stopping the action of the uterus. It is obobvious how absurd it would be to administer ergot under these circumstances: this were like extinguishing fire by pouring oil on it. The action ceases sometimes spontaneously, when fever sets in or when the uterus becomes exhausted by overwork. The paramount indication, however, is to deliver the woman as soon as possible and with the greatest care. Every minute of delay must jeopardize the life of the mother. At the same time it is apparent how dangerous every interference must be. A small amount of stretching, as by introducing the hand or the application of the forceps, which would do no harm under ordinary conditions, can very likely be fatal to the mother. Version is particularly dangerous, as the turning of the child, even though carefully done, puts the cervix very much on the stretch. It should therefore never be resorted to when the uterus is firmly contracted and a large portion of the child is pressed into the cervix. It is an averred fact that mischief has been done under these circumstances even by experienced accoucheurs. Bearing in mind that sometimes even skilful interference cannot prevent an impending rupture, we are, however, warranted in saying that the more skilful the interference is, the less the danger. But we must be very careful in criticising a case of rupture, especially if the obstetrician has not been called before the conditions described above have taken place. A good illustration of these views is the case reported for the operator by Mundé (AM. JOUR. OF OBSTETRICS, April, 1881). The spontaneous rupture was beginning, and the interference completed the rupture. But it were presumptious to lay a blame upon the interference, as the complete rupture was probably unavoidable; still two hours of alternate efforts to extract the child are usually more than the uterus can bear, especially under these circumstances.

When the accoucheur is called at the beginning of labor, he will be able to prevent rupture, as the symptoms of impending rupture are so distinct that no observer, once being acquainted with them, can overlook them. Most of these symptoms and especially the changes in the cervix and uterus have often been correctly pointed out, as among others by Lusk in the cases which he demonstrated to the New York Obstetrical Society. (AM. JOUR. OBSTETRICS, Nov., 1873); Mundé (*Ibid.*, May, 1873); and John S. Parry (*Ibid.*, Aug., 1873: "The walls of the organ in the vicinity of the rupture were exceedingly thin, while the fundus was thick, hard, and contained some clots");

but these alterations had not been duly appreciated before Bandl called attention to them.

Only in the very few cases in which the tissue of the cervix has been so changed by previous pathological alteration that it has lost all resistance and cannot bear any stretch, could even an experienced accoucheur be surprised. C. Braun observed two cases of rupture before the membranes were ruptured. As a rule, the membranes rupture at a pressure of

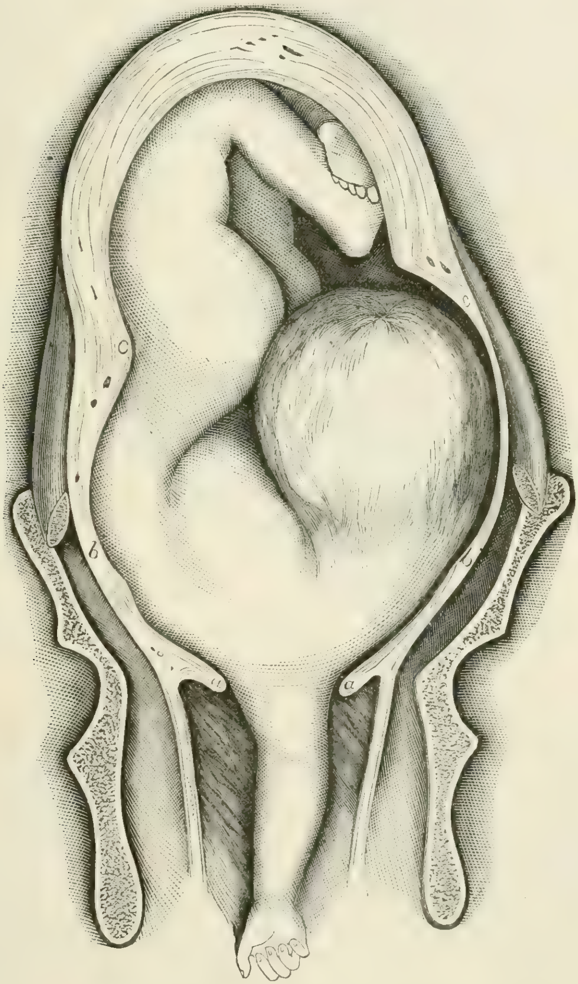


Fig. 4.

eight pounds. Although they are sometimes more resistant, they can hardly ever bear a pressure of seventeen to fifty-five pounds, which is required, according to Schatz, for the expulsion of the fetus in an ordinary labor.

The same conditions as in head presentations with abnormal resistance in the passage can be produced in a normal pelvis by shoulder presentation. Figure 4, taken from Schroeder's text-book, illustrates accurately the conditions which are produced by a neglected shoulder presentation; from this condition without interference there is no other exit but paralysis of the uterus by exhaustion, or rupture. The spontaneous evolution of a full-grown child or spontaneous version are so exceptionally rare and fraught with so much danger that we cannot rely upon them.

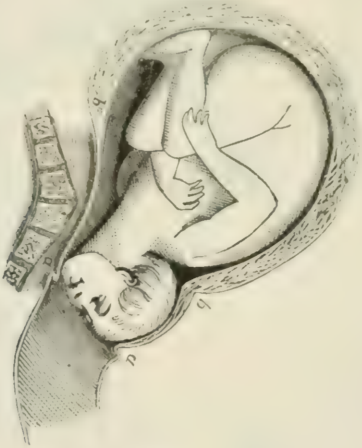


FIG. 5.

The seat of rupture is at the place of the least resistance, that is in the cervix either posteriorly opposite the sacrum, or behind the symphysis, or at the side of the cervix. In cases of latero version or anteflexion of the uterus, as in pendulous abdomen, one side of the cervix is more stretched and therefore more exposed to rupture (Fig. 5). C. Braun, Collins, Clark, notwithstanding their exceedingly large material, never saw rupture at the fundus, and there is good reason to doubt whether some cases described as such were not cases in which the sac of an interstitial pregnancy or of one developed in one horn of a uterus unicornis or bicornis had given way. Kussmaul in his work (On the Defects of the Uterus, etc.) has reported very instructive cases of this occurrence. The reason for non-rupture of the fundus uteri is as above explained, but not as given by Playfair, l. c. p. 426 : "Ruptures of the upper part of the uterus are much less frequent than of the portion near the neck, partly no doubt because the fundus is beyond the reach of the mechanical causes to which the accident cannot unfrequently be traced, and partly because the lower third of the organ is apt to be compressed between the presenting part and the bony pelvis." From the nature of the rupture sometimes a conclusion can be drawn as to what the immediate cause of the rupture was. The rent has the direction in which the muscular fibres of the cervix had been put most on the stretch. In a large number of cases the rupture is transverse. The cervix is torn assunder. In some cases the entire cervix has been torn away and separated in the form of a ring. The form of transverse rent will be found in cases in which rupture of the cervix is caused by the contractions of the uterus alone, while in the cases in which the presenting part of the child presses more on one side of the cervix, as for instance in occipital presentation the occiput, or in face presentation the forehead, or in shoulder presentation the head, this part bores itself through the tissue and produces a longitudinal rent. The introduction of the hand or application of the forceps under these circumstances will be likely to produce a longitudinal rent, while the turning of the child will make a transverse rent, because in the first case the stretch upon which the attenuated cervix is put is in the longitudinal, while in the latter it is in the transverse direction. In seven cases of *spontaneous* rupture in head presentation which I have seen the rupture was transverse, and in five cases *after interference* the rent was longitudinal. But as above explained and as others have observed, longitudinal rents can also be produced without any interference.

It is a matter of observation that rupture takes place more frequently in the lesser than in the higher degrees of deformed pelvis. Different explanations for this have been given. Bandl thinks because the cervix is compressed between the head and the pelvis, but Schroeder pertinently remarks that rupture occurs likewise in cases of shoulder presentation, where no such compression takes place. I would suggest another explanation. In the lesser degrees of deformed pelvis, a large portion of the presenting part of the child can enter the inlet, and consequently a large portion of the fetus can be crowded down into the cervix, and by this portion the cervix is distended transversely while at the same time it is stretched longitudinally by the contractions of the uterus; whereas in the higher degrees of deformity no portion of the child can engage in the inlet and the cervix is put on the stretch only in the longitudinal direction by the contraction of the uterus.

Rupture in multiparæ who had previously gone through difficult labors is eight times (C. Braun) more frequent than in primiparæ. In these cases the conditions as described above are often produced in a very short time. When the cervix has been abnormally extended in a previous labor, in the next labor the extension does not require much force; probably an alteration in the tissue of the cervix has taken place, by which the resistance of the cervix has been lessened. Then the resistance of the abdominal walls and of the fixation of the uterus which counteracts the extension of the cervix is diminished.

The statistical compilations concerning the frequency of rupture have only in so far a value as they give information of the kind of assistance which the women in labor have received. Thus it can be explained that in the one compilation we find one case of rupture in a thousand cases of labor and in the other one case in six thousand. In Europe rupture is probably more frequent than here, because deformity of the pelvis is more frequent, almost every seventh pelvis there being more or less deformed and the women being mostly confined by midwives. The statistical tables are very unreliable, especially when the histories of the cases are so defective as in the one hundred cases of Ames. In almost half of the cases no cause of the rupture was known.

II. *Treatment.*

The best measure consists in preventing the development of conditions favorable to the occurrence of rupture. If we are called at the beginning of labor, and if we observe carefully the contractions of the uterus, we will surely succeed in preventing the abnormal prolongation of the cervix. These cases require much care and experience. If we interfere too soon before the head is moulded, it will be very often impossible to bring the head through, although the disproportion may be slight, and we would lose many a child which could be saved. On the other hand, if we wait too long we expose the mother to the dangers of rupture. Particular attention must be paid to the extension of the cervix. In the one case it can be extended to the utmost in a very short time, whilst in another case even after twenty-four hours of labor it is not abnormally stretched. It depends upon the efforts of the uterus and the resistance of the cervix. After complete dilatation of the cervix we should not long remain passive, especially if we see that the cervix begins to stretch beyond the normal dimensions. I have often seen grave mistakes made in diagnosing complete dilatation of the os. The condition of the os is very different when the head is arrested at the superior strait than when it is in the inferior strait. In the latter cases, when the os is completely dilated, it retracts over the head, and the edges of the os cannot be felt; but when the presenting part is arrested at the inlet, the cervix cannot retract over the presenting part, and the edges of the orifice can be felt, although the os is completely dilated. To wait in these cases until the lip of the os can no longer be felt is to wait for what will probably never occur. We will say the orifice is completely dilated when its lips offer no resistance when we try to push them away with the finger, although the calibre of the orifice may be no larger than a silver dollar. If the cervix should become prematurely stretched beyond the normal length, we are warranted in interfering, even before complete dilatation of the os. When the head is engaged in the inlet we should apply the forceps, if the child is still living, and make some traction, but we should not persist too long if we see that strong tractions cannot move the head. The forceps should then be withdrawn and perforation resorted to. If the head is still movable, turning by the feet is preferable, provided no contra-indication to turning is present. Total escape of liquor amnii and firm contraction of the uterus contra-indicate turning, because the revolving of the child is very dangerous to the uterus, even though carefully performed. When the child is evidently dead, perforation should be at once resorted to.

When women have already had one or more children with difficult labors, on account of the disproportion between the head and the pelvis, every next labor exposes them to the danger of rupture, and they can only be safely delivered if the head is not too large for the pelvis. By timely turning by the feet, or, if necessary, by induction of premature labor, the danger of rupture can be avoided. Women who have recovered from rupture are likewise exposed to the recurrence of rupture. The induction of premature labor will be the safest procedure in such cases.

In shoulder presentation, turning should not be delayed after the membranes have been ruptured. As long as the membranes are not ruptured, no danger can arise. If turning by external manipulations does not succeed, we can wait till the orifice is sufficiently dilated. But it is very different if the membranes rupture prematurely. In these cases, the dilatation of the orifice takes a long time, because the mechanical wedge which should dilate the orifice is wanting, and during this time the waters escape, the uterus becomes firmly contracted, and when at last the orifice is sufficiently dilated, the conditions predisposing to rupture may have developed. Therefore, as soon as the membranes are ruptured, if the orifice is not dilated, turning according to Braxton Hicks should be performed.

Also in cases in which rupture is impending we can, as a rule, prevent it by careful management of the case. The woman must be delivered as soon as possible, and by the procedure which puts the tissue of the cervix upon the least stretch. In head presentations, a careful application of the forceps can be tried, but perforation should not be delayed too long. If it is not possible to fix the head from without through the abdominal walls, it can be fixed with the forceps. Turning should not be resorted to in these cases. Even the most experienced will often fail to deliver safely by turning when the symptoms indicating the impending rupture are present. In shoulder presentations, when the conditions as illustrated in Fig. 4 are present, turning is contra-indicated, as in these cases the child is surely dead, and the decapitation of the child is far more safe to the mother than turning.

The following two cases, which I delivered in the Lying-in Hospital in Vienna, may have some interest. The first case, which convinced me of the correctness of the views upheld by Bandl, I observed at the clinic five years ago.

The woman was in her second labor, the first having been spontaneous; she was brought to the clinic twenty-four hours after the beginning of labor, and fruitless application of the forceps. The pelvis was rachitic with nine centimetres antero-posterior diameter, the other diameters normal ; the face presenting and engaged in the superior strait, first position; the membranes ruptured since twelve hours. The child living. The line of demarcation between the cervix and the body of the uterus was so distinct that the students, who had never heard anything about this line, were struck at once with the depression which crossed the abdomen from one side to the other, one inch under the umbilicus. The depression was marked during the intervals, but still more apparent during the contractions. The os was completely dilated, but the edges of the orifice could be felt all round. The general symptoms as in the case described by Bandl. I applied the forceps, but withdrew it after some tractions, as I saw that the head could not be extracted. Perforation was performed, although the child was still living. After perforation, the child was extracted with the cranioclast. The woman was discharged on the tenth day after labor. Even if the head had not been firmly engaged, turning would have been too dangerous under these conditions.

In the other case I had the opportunity to examine the uterus post-mortem, which offered during the labor the conditions as in the case already described. The woman, a pluripara, was brought to the clinic dying from Bright's disease, the head in the pelvic cavity. I easily extracted a living child with the forceps. The mother died immediately after labor. At the post-mortem the pelvis was found rachitic with eight centimetres antero-posterior diameter, the cervix stretched to the length of fifteen centimetres, and so thinned out that on superficial examination it could be taken for the vagina. The uterus was firmly contracted, its walls thickened to four centimetres.

We had no case of spontaneous rupture occurring in the clinic during four years, among more than twelve thousand cases of labor, and only a single case in which rupture was detected after turning under very unfavorable circumstances. In this case, however, it was doubtful whether the rupture had not happened before the interference. If we are called to a case in which the symptoms of impending rupture are obvious, we must examine carefully whether rupture has not already taken place, as the symptoms of the rupture having already occurred are not always so distinct as some accoucheurs believe, especially when no part of the child has left the uterine cavity. In Bandl's fifth case, the woman was, notwithstanding a complete rupture in the cervix, spontaneously delivered of an asphyxiated child, weighing 3,200 grammes. If we fail to diagnose a rupture before our interference, we can hardly convince ourselves, and still less the others present, that rupture existed before our manipulations, as sometimes none of those general symptoms which are pathognomonic for rupture of the uterus appear before delivery. If spontaneous rupture has been diagnosed, we should be particularly careful not to enlarge the rent during any operation we feel called upon to perform. Turning would undoubtedly enlarge the rent, therefore it should be dispensed with as much as possible. When the head is movable at the inlet, instead of turning by the feet, it is safer to perforate and to extract with the cranioclast.

After having verified Bandl's statements, we will subscribe to his conclusions, p. 79, l. c.: "I am thoroughly convinced that he who bears in mind these abnormal conditions will save many a woman and many a child who are destined to die; and *vice versa*, he who allows labor to go on, performs version, or elevates the head of the child (from the inlet), must kill many women unawares. These abnormal conditions demand all the attention and consideration of the obstetrician; while by their discovery the operative management of the case is not facilitated, still the indications for such interference can be drawn more exactly and carried out more often without endangering the uterus."

226 EAST 19TH STREET.

UTERINE DILATATION WITH A NEW INSTRUMENT.

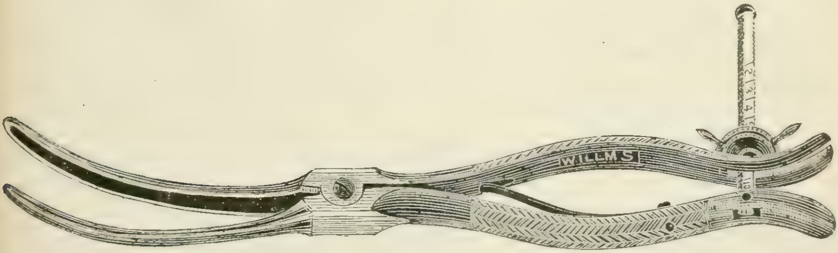
BY

H. P. C. WILSON, M.D.,

Baltimore, Md.

I DESIRE to call the attention of obstetricians and gynecologists to a set of uterine dilators which I have devised, for taking up dilatation of the uterus where most other such instruments leave off, and for completing dilatation sufficiently in a partially dilated or dilatable uterus, for manipulative interference in its cavity. They are three in number; only differing from each other in size and power; and we use one or the other in proper cases, as we want more or less dilatation.

This instrument is composed of two blades, which we call a male and female blade, or a left and right-hand blade; a joint, about one-third up from the dilating end, fixed by a screw; a spring between the handles upon which to exert the expanding power; a screw-stem attached by a hinge to the handle of the left-hand blade and fitting into a notch at the end of the handle of the right-hand blade. Upon this screw-stem is fitted a female screw, and its flat surface is divided into centimetres, so that in compressing the handles with the hand in making dilatation, and moving the female screw against the right-hand handle to fix the dilatation gained, we can tell by observing the centimetres on the screw-stem just how much expansion of the uterus has been accomplished. The right-hand blade below the joint is a little larger and longer than the left,



and is concave on its inner surface up to within a centimetre of the end, where it becomes convex and blunt-pointed. The left-hand blade is shorter than the right, and convex on its inner surface, so that when the blades come together, the left-hand or male blade folds within the right-hand or female blade. Thus we get a very small circumference for introduction into the cervical canal in comparison with the dilating power of the instrument.

It is as simple in its construction and mode of application as a lady's glove stretcher; and if used with the same discretion and gentle manipulation with which a lady stretches the fingers of her glove, it will accomplish for the uterus what she accomplishes for her glove—a little more room to slip the finger in; but if undue force is used, or even moderate force, on a uterus not dilatable, the result will be the same as to the lady who uses with her stretcher undue force, or even moderate force, to unyielding kid—she will split her glove.

All of us who have practised obstetrics and gynecology have so often felt how much we would give for one-eighth or one-sixteenth of an inch more room in a cervical canal through which to enter and manipulate in the uterine cavity. Perhaps the finger enters, but is grasped so tightly by the cervix that all manipulation is out of the question. In all such cases my instruments will come to the rescue, and in a few moments, either with or without an anesthetic, sufficient extra-expansion is gained to enable us to go on with the operation within the uterus.

Let it be *distinctly remembered* that my instruments are never to be used for primary dilatation; neither in such cases as an elongated, indurated, and conical cervix, nor in a hyperplastic, indurated, and non-elastic cervix. For their use, the cervical canal must always be partially dilated, or soft, pliable, and dilatable. In these cases every practitioner in the diseases of women will find my dilators to serve him a good turn, and enable him often to accomplish that without which he would fail.

Perhaps he has used one sponge-tent, or one or two laminaria, tupelo, or corn-pith tents; perhaps with either of these the cervical canal is dilated only enough to allow the finger to partially enter, but the cervix is soft and pliable from the tent; then my dilators, with or without chloroform, will probably complete the expansion sufficiently to allow satisfactory exploration of the uterine cavity, without subjecting the patient to the delays and dangers of a second or third tent.

In my experience, all the ill results have followed the use of a second, and much more the use of a third tent, and any instrument by which we can safely save a patient from a first or second repetition of this dangerous means of dilatation will be a great blessing to the physician, and a greater blessing to his patients.

Often we meet with cases where there are remains of an old pelvic cellulitis, where the broad ligaments (one or both) are thicker than they ought to be, and the uterus does not swing in the pelvis with the freedom it should. The cervical canal is partially dilated, but not enough to admit the finger. It is necessary to explore the cavity of the uterus. To introduce a tent in such a case, and allow it to remain twenty-four hours, as we should have to do, would incur much more danger in lighting up acute pelvic cellulitis than to give chloroform, and carefully and slowly dilate with my instruments sufficiently for a digital exploration.

To illustrate:

A lady, the mother of nine children, was, a few months since, placed under my care by a most excellent physician of this city. She had been bleeding more or less for some weeks, and was much exsanguinated. She and her physician had misgivings that she had miscarried at about three months of pregnancy, but they were uncertain. No fetus had been discovered, and no afterbirth had appeared. She had the remains of an old pelvic cellulitis. The cervical canal was partially dilated, but not enough to get my finger in. I had not then completed my dilators. I was afraid to use tents. Ergot was freely given. The uterus was mopped out with iodine and iron from time to time, but with no permanent benefit. The bleeding continued more or less constantly, and the patient was daily growing weaker. Just then I received the rough cast of my dilator, and with it I was able in a few minutes to expand the cervical canal, so that my finger passed readily into the uterine cavity, where I discovered an adherent placenta. I raked it away with the finger-nail—"the hand as a curette." The uterus was washed out with warm carbolized water, and then mopped out with subsulphate of iron and glycerine as an antiseptic. The patient had no further trouble, but rapidly regained her health.

Thus I accomplished with these instruments in about ten minutes what I had failed to do by other means in several weeks. Under chloroform, I thus escaped the dangers of a tent, viz.: nervous shock—more or less severe pain for twenty-four hours—the generation of a septic fluid, bathing an abraded surface ready to absorb it, and the lighting up of an acute upon the remains of a chronic cellulitis.

These factors, being in force for twenty-four hours, would have multiplied dangers to the patient far above those from rapid dilatation under chloroform, in a dilatable cervix. I was assisted in this operation by Drs. Robert T. Wilson and Wm. P. Chunn.

This instrument will be found of great use in those cases of abortion where the fetus has been expelled and the placenta is retained, and perhaps is adherent, with the uterus closed. In most cases of abortion the cervical canal will be found sufficiently dilated for the obstetrician to pass in his finger and deliver the placenta. He has no difficulty, or if he has, it is overcome by the liberal use of chloroform. But now and then we meet with a case where the finger cannot enter, but the cervix is pliable and dilatable. Slow and careful dilatation with my instruments, under chloroform, will, in every such case, enable the finger to pass into the uterus, and separate and deliver the retained placenta.

We shall thus at once escape all danger from profuse and repeated hemorrhages, by which the patient's health is so reduced that she is months in recovering. We escape the dangers of septicemia from a decomposing, retained placenta; the dangers of an endometritis from the continued presence of such noxious and irritating matter in the uterine cavity; and we escape the danger of being censured for allowing an "afterbirth" to remain undelivered. Prompt delivery of the placenta should follow the escape of every fetus.

These dilators will also be found most useful in cases where we are compelled to induce premature labor or perform rapid delivery; and in such cases as those, where the uncontrollable vomiting of pregnancy or a placenta previa is threatening the life of the patient, and the cervical canal is not sufficiently open for the insertion of a Barnes' dilator, and in cases of puerperal eclampsia, where the indications are to deliver speedily. In all such cases, these dilators, used in cautious and intelligent hands, will greatly promote the rapid expansion of the cervix up to the point where Barnes' dilators will more efficiently complete the work.

Objection has been made to my dilators, that they are powerful instruments and capable of doing great damage by lacerating the cervix uteri. This is true, but the answer is, that most surgical instruments, which are powerful for good, are also powerful for evil when used by unintelligent and unskilful hands. Nothing can do more danger to a patient than a scalpel, or obstetrical forceps, when used without knowledge, without judgment, without caution. Dilatation, with my instruments, is to be made, not by a blind mechanical force as a screw, etc., but by an intelligent hand, which can discern how much resistance is in the cervix, and how much force can be safely exercised in the particular case. The screw is only to fix the dilatation at a point where it can be safely borne, and there allow it to remain till the yielding muscular fibres allow a little further expansion.

Again, it has been objected that if the instruments do not lacerate the muscular tissue of the cervix, they will at least lacerate the cervical mucous membrane, and any septic matter within the uterine cavity, as from a decomposing placenta or fibroid tumor, would run down over this abraded surface and produce septicemia.

This position cannot be maintained against rapid dilatation (when we disinfect immediately with carbolic acid or subsulphate of iron) with anything like the force that it can against the slow dilatation of tents, where the surface is abraded and bathed in septic matter for at least twenty-four hours before it can be disinfected.

These objections are untenable, always remembering that my dilators are only for use in a partially dilated cervix—or in an evidently dilatable cervix—to be used not with blind force but by an intelligent hand, and with all that caution which distinguishes every successful surgical operation.

That mechanical dilatation of the uterus for diagnosis and therapeutics is frequently necessary in gynecology and obstetrics, is an axiom beyond all cavil. The only question is, how it can best be done, with the least discomfort and danger to the patient. Conditions arise within the uterus which we must get at and remove, or we consign our patient to an invalid's bed or a premature grave.

In a virgin uterus, which has never been dilated, or in a hyperplastic indurated cervix with the minimum of elasticity, I believe a sponge-tent is the best means with which to commence dilatation. With one such tent remaining twenty-four hours in utero, we may so dilate and soften down the cervix as to be able to accomplish sufficient dilatation on the second day with my dilators. If not, I would follow up the sponge with a laminaria or tupelo tent. On its removal, my instruments will certainly supply all the room needed for entering and manipulating in the uterus.

I believe that no mechanical treatment of the uterus is fraught with more danger than the use of tents, and especially sponge-tents, and every tent from which we can save the patient is an additional security to her. The evils resulting from tents in my hands have always followed the second or third, never the first; and if with one tent we can so soften and expand the cervix as to complete the necessary dilatation with such instruments as mine, we shall accomplish much for the safety of our case, especially when used, as they should be, under anesthetics. In passing I may remark that no tent should be used without dipping it in carbolic acid and glycerine just before insertion, and previously mopping out the cervical canal with the same; and no sponge-tent should be used without being wrapped in gold-beater's skin, which should be punctured at various points to admit moisture to the sponge. This valuable suggestion originated with my friend, the late Dr. J. C. Nott. No tent should be removed without washing out the cervical canal with carbolized warm water, and mopping the same with carbolic acid and glycerine.

The means for dilating the canal of the cervix uteri are as numerous as the varied indications which call for the same, and when we remember that the uterus is physiologically and anatomically constituted for dilatation, as well as contraction, it is not wonderful that all the means invented for expanding this organ should be found useful in certain cases. Neither with Peaslee's graduated sound dilators, nor with Hanks' olive-shaped hard-rubber dilators, have I had any success. No doubt they are useful in the hands of those who manipulate them more skilfully than I do.

In rigid non-dilatable uteri, I prefer a tent first, and rapid steel dilators afterwards. In dilatable uteri the tent may be dispensed with, as steel dilators will accomplish the result; first using Ellinger's, or Palmer's, or Miller's, or Nott's, or Ball's, all of which are good up to a certain point, but, owing to the spring in their blades, they have little dilating power. Then complete the dilation with Ellwood Wilson's, with Sims', or with mine.

My objections to Ellwood Wilson's instrument are, that the blades are at too acute an angle with the shafts; that blade fits against blade, instead of folding one within the other, by which we get equal force with reduction of size and facility of introduction into a narrow canal; that the handles are nearly at right angles to the shaft, instead of straight. Those conditions make his instrument more difficult to manipulate when the os uteri has been steadied and straightened by a tenaculum, as it always should be before introducing the dilator.

Sims' dilator is certainly a most ingenious and valuable instrument. My objections to it are, that it is complicated, trivalved, square-pointed instead of probe-pointed, and too short from the shoulder to the point of introduction, so that in some cases it does not pass far enough into the uterus to dilate the lower portion of that organ, as in the case of a small sessile fibroid tumor situated at the fundus of the uterus.

Both the above instruments have great merit. I claim for mine simplicity, ease of introduction into a comparatively narrow canal, and as far into the uterine cavity as may be desired, and facility of manipulation, by which we can dilate the cervical canal and lower portion of the uterus in every direction by rotating the handles.

When dilatation is demanded beyond the capacity of these instruments, we must supplement them with Emmet's water-bags, or Barnes' dilators. I have never found Molesworth's water dilators of practical use in my hands. They are usually out of order when wanted.

In closing, let me repeat what I have already said, that my dilators are never to be used, except in a *dilatable or partially dilated uterus.* So frequently in my life have I been placed in positions where I would have given anything for one-sixteenth of an inch more room, that I feel, my professional brethren, with similar experiences, will receive with leniency another instrument which commends itself for its simplicity and efficiency in just such cases.

No. 146 Park Avenue, Baltimore.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF NEW YORK.

Stated Meeting, Oct. 5th, 1880.

Dr. Wm. T. Lusk, *President, in the Chair.*

Dr. Mundé reported a case of

INTRAUTERINE ANTE-PARTUM HEMORRHAGE,

which had occurred in his service at Maternity Hospital two days previously. The following history was furnished him by Dr. G F. Lydston, the physician in charge of the waiting-ward at Charity Hospital, who attended the case.

"K. S., primipara, æt. twenty-four; single; Ireland. Has always enjoyed good health up to this pregnancy; denies having venereal trouble; date of last menstruation February 22d, 1880; about middle of March commenced to suffer from gastric disturbances, and about second month suffered from vomiting, which has continued up to time of labor; patient states she has passed less urine than usual; was otherwise perfectly well throughout pregnancy until October 1st, 1880; about 10 A.M. on above date patient had an attack of syncope; did not lose consciousness completely, though she was very dizzy; surface was cold, and face covered with cold perspiration, although none of these symptoms were specially marked; patient stated to the doctor that she had felt faint, and had caught a severe cold, as was evidenced by slight coryza; complained of no pain, and made no special complaint; was ordered to bed, and pulv. Doveri gr. x. administered; patient states that since that time she ceased to feel the motions of the child; she arose Saturday morning feeling perfectly well, with the exception of the vomiting, which she has had throughout pregnancy.

Oct. 3d.—Patient began having pains at 3 P.M.; said nothing about them. When the doctor was called, found os fully dilated, bag of membranes protruding; no presentation could be felt; membranes were ruptured at 6.55 P.M.; breech presented R. O. A.; the lower limbs and breech were expelled at 8 P.M.; after some delay, head and trunk were extracted; with the trunk and head was expelled a large clot which had protruded with the breech; the placenta was retained till shortly after nine o'clock, when it was removed by expression by Dr. Mundé, who had that moment arrived; the uterus contracted promptly; patient vomited shortly after labor had terminated; no more than the usual amount of blood was lost at the confinement; the patient, however, had a decidedly anemic appearance."

Remarks.—At the time the breech engaged in the pelvic brim, a small soft mass was felt protruding with the breech and posterior to it, which was taken for placenta, until a portion was detached and found to be a firm coagulum. When the breech protruded at the vulva, a small portion of this mass was also felt protruding on the abdominal surface of the child, and it was expelled simultaneously with the head and trunk, proving to be the large clot above mentioned. This clot was found to weigh one pound seven and a half ounces avoirdupois. The child had evidently been dead for several days, as the epidermis was peeled from the abdomen and bullæ were raised on other portions of the body. The head, however, was firm, and showed no sign of flaccidity; there was no ante-mortem eruption on the body of the child, which was large and well nourished. On being shown the clot which I here present to the Society, I was struck by its smooth, shining appearance and regular ovoid outline; but not till I had thrust the scissors into it did I perceive, by its hardness and density, that it evidently was not a recent formation, that is, since the birth of the child one hour previously. I found that the clot could be cut almost like an organized body, and that handling did not disturb its outline or consistence. The larger portion of the clot was darker, mottled gray in color, and the whole mass was covered by a glistening membrane. It was evident that this clot had been in existence long enough to enable it to assume the characteristics of a fibrinous polypus in the first stage. It seemed probable that the time of its formation coincided with the attack of syncope experienced two and a half days before, and that the death of the child was due to this intrauterine hemorrhage. The source of the hemorrhage undoubtedly was a solution of continuity between placenta and uterine wall; but the exact seat of this separation and its cause I am not able to determine. The placenta, as you see, presents a ragged appearance; several lobes are apparently farther advanced in fatty degeneration than normal, and these may possibly have been detached earlier; at one spot there is a tolerably firm coagulum, besides a flat layer of coagulated blood near the centre of the placenta. No force whatever was used in removing the placenta, simple expression immediately expelling it.

Dr. Mundé then referred to a case of ante-partum hemorrhage recently reported by the President, who succeeded in saving the life of both the mother and the child. According to Dr. Goodell's statististics, the mortality is extremely great for both mother and child. In his case, the mother, according to the report of the house physician, was doing well.

THE PRESIDENT regarded the arrest of hemorrhage after the effusion of so large a quantity of blood as a very rare event.

DR. MUNDÉ remarked that he should have added there was no external hemorrhage whatever; a peculiar feature of the case was the occurrence of the hemorrhage so long before labor.

DR. BACHE EMMET asked what could have given rise to such a rent in the placenta, except a previous injury.

DR. MUNDÉ replied that from the appearance of the placenta he should judge that it had undergone fatty degeneration, and, therefore, might have ruptured very easily from very slight cause. [A subsequent microscopical examination by Dr. Heitzmann showed extensive amyloid degeneration.]

DR. HANKS remarked that it was not usual for a clot to remain in the uterus for so long a time—two and a half days—without producing labor earlier.

DR. MUNDÉ admitted the force of Dr. Hanks' suggestion. The patient, however, did not complain of pain; but it was possible that she had pain without uterine contraction. In Dr. Goodell's cases, pain was secondary to shock.

DR. HANKS further said that an artificial body of much less formidable character in the uterus, as a rule, brings on labor.

THE PRESIDENT believed it to be evident that the walls of the uterus were lax at the time of the occurrence of the hemorrhage; otherwise the blood would not have accumulated between the membranes and the uterine walls, and so escaped externally. The flabby condition of the uterus doubtless made the retention of so large a quantity of blood possible, without exciting uterine contraction.

DR. EMMET asked, Might not the clot have undergone partial destruction, accounting for its peculiar appearance, in a manner similar to that which had occurred in the child? It seemed that the hemorrhage occurred some time previous to delivery, and that the child was somewhat decomposed.

DR. MUNDÉ thought not, for there was no external hemorrhage, and, therefore, probably the clot was not exposed to the air. He thought that a large clot unexposed to the air would become covered with an albuminous membrane, as this specimen was, and might remain for a long time, without undergoing decomposition; besides, the child was not at all putrid, but the epidermis slipped off simply in consequence of maceration in the liquor amnii and subsequent friction, as it passed through the soft parts of the mother.

MYXO-DERMOID CYST.

DR. BACHE EMMET reported a case as follows: On Tuesday last, he operated at the Woman's Hospital upon a patient who was supposed to have an ovarian tumor. Upon making the abdominal incision and passing in a probe, only a few adhesions anteriorly were encountered ; but a short distance from the median line quite extensive adhesions were found, and he was compelled to enlarge the abdominal incision to give room for the breaking up of the adhesions, which were soon found to be general.

After emptying the large cyst, he passed his hand in and broke down several smaller cysts that contained material varying in consistence. One contained a mass of hair and fat; another, material similar in appearance to melted fat, and still another contained only hair.

After enucleating a large portion of the tumor, which apparently was ovarian, he reached what appeared to be the pedicle, when the entire mass came away. There was no hemorrhage in the place from which the mass had been dislodged. After raising the cysts which contained the dermoid material from the pelvic cavity, it was found that a portion of the broad ligament was brought forward, which was ligated and divided. There was considerable oozing of blood from various points ; but the hemorrhage having been controlled, the abdominal opening was closed, with a drainage tube inserted. The operation was very long, and the destruction of tissue very great. The patient, however, notwithstanding the severe shock, did very well ; and it seemed not improbable that she might recover. There was no discharge from the drainage tube for two days. On the fourth day, the tube contained serum and some broken-down material. It was carefully cleansed and again sealed up, but symptoms of septicemia developed soon after, and persisted ; peritonitis supervened, and the patient died on the eighth day after the operation.

Dr. Emmet regarded the occurrence of a double dermoid cyst as a rarity ; one in the ovary, and the other involving the broad ligament. Full antiseptic precautions were observed, and he inclined to the opinion that the case would have terminated favorably, had a drainage tube not been used. At autopsy, ten ounces of decomposing blood were found in the pelvic cavity, very low down ; it was probably from oozing, subsequent to the operation.

Dr. H. J. Garrigues stated that he had examined the specimen carefully microscopically, and found it to be a myxo-dermoid cyst. He regarded it as a rare form of cyst, and one that illustrated how intimately the two varieties, the fluid ovarian cyst and the dermoid cyst, could be blended.

Dr. Emmet raised the question, Would it not be proper in such cases to remove the broad ligament, as if it had formed a pedicle, in order to prevent the occurrence of severe and, perhaps, fatal hemorrhage?

A PESSARY WORN ELEVEN YEARS CONTINUOUSLY.

Dr. Rodenstein exhibited a pessary that had remained in the vagina *eleven* years. It was removed by inserting a blunt hook into the central hole, and tearing it out of a complete sulcus in the vaginal wall: it was incrusted sufficiently to nearly double its size. The discharge had been exceedingly offensive, and the case had been diagnosticated as one of cancer. The instrument was put in by a physician in Ireland in 1869, and the patient had forgotten all about it.

Dr. Hanks referred to a case in which he removed two pessaries that had remained in the vagina for about one year. One, the Albert Smith pessary first introduced, was completely imbedded; but he succeeded in removing it without sawing the instrument.

Dr. Mundé referred to a case in which a glass pessary was worn continuously for *five* years. The discharge was exceedingly offensive, and it was on account of that that the patient sought medical advice. He found loss of substance in the vaginal wall, but could not feel any cervix. After a time, the ulceration caused by the pessary was cured; and the prolapse of the uterus, for which the pessary was originally introduced, also remained cured. Not much force was required to remove the instrument, and it was not incrusted.

Dr. M. D. Mann referred to a case, in which an ordinary white-rubber ring-pessary was introduced for prolapse of the uterus, and worn by the patient until it had buried itself completely in the vaginal wall. He removed the instrument, and in the healing process a diaphragm of cicatricial tissue was found across the vagina, which completely cured the prolapsus uteri.

ACCIDENTAL MANUAL RUPTURE OF A SMALL OVARIAN CYST.

Dr. J. B. Hunter reported a case as follows: A patient, who was supposed to have retroversion of the uterus, was brought to him, and upon examination a tumor, of the size of a small orange, in addition to the retroversion, was found connected with the right ovary. During the manipulation the cyst ruptured, the patient not knowing that anything had occurred, and no unpleasant symptoms followed.

Dr. Janvrin thought that cysts of the broad ligament are much more easily ruptured than ovarian cysts are, and that the shock is much less than that which follows rupture of ovarian cysts.

The President referred to a case under the care of Drs.

Thomas and Walker, in which rupture of a pelvic cyst was followed by considerable shock, and a certain amount of peritonitis.

Dr. Janvrin remarked that, probably, the cyst was ovarian.

Dr. Walker stated that it was; and that at the time it was supposed there had been slight escape of fluid at times from the cyst, because of the repeated attacks of severe abdominal pain.

Dr. Hunter thought that the fluid from a small ovarian cyst with thin walls was as bland as that in a cyst of the broad ligament.

Dr. Hanks asked, What is the best treatment for arresting the growth of ovarian cysts an inch and a half or two inches in diameter?

Dr. Hunter replied that he should not atttempt to check their growth, but should, as a rule, let them alone.

Dr. Mundé asked, Why not aspirate them?

Dr. Hunter replied that they would fill again.

Dr. Mundé referred to Dr. Skene's use of the aspirator as a curative measure; and also mentioned a case occurring six months ago, in which he aspirated the cyst through the vagina, and removed six ounces of straw-colored serum, and it had not refilled.

Dr. Hanks remarked that it is generally accepted that a cyst of the broad ligament is not so likely to refill as an ovarian cyst.

GANGRENE OF AN UNUSUALLY LARGE EPITHELIOMA OF THE CERVIX UTERI.

Dr. Mundé reported a case with the following history: Two weeks previously, he was called to visit a patient about one hundred miles north of Hanover, N. H., who was thought to have a fibroid polypus of the uterus. The patient was forty-nine years of age, had been what she regarded as perfectly healthy up to three weeks before the date of his visit. During the last year she had suffered occasionally from frequent desire to micturate. Three weeks previously, she was suddenly taken with an exceedingly urgent desire to void her urine, so severe that she was obliged to leave church, and when she reached her home she had a profuse hemorrhage, which prostrated her very much, but was finally checked by a vaginal injection of a solution of perchloride of iron. During the three weeks nearly that followed, the patient's general condition depreciated markedly, and there was a profuse and exceedingly offensive vaginal discharge. Her pulse was 120 and very feeble. On examination, the vagina was found to be tender and entirely filled with a soft, irregular-shaped mass that did not feel like a fibroid. After putting the patient under the influence of ether, a more thorough examination was made, when it was found that fully one-half of the growth which distended the vagina was gangrenous, that it sprang directly from the cervix, and that the chances were that it was epitheliomatous in character. With fingers, curette, and scissors he removed all of the growth he safely could, painted the remaining surface over with tincture of iodine, plugged the vagina with cotton wet in a saturated solution of alum, and up to Oct. 4th the patient had been doing tolerably well. The chief point of interest in the case was the gangrene and its early development. The growth had not encroached upon the vaginal walls, and Dr. Mundé thought the gangrene was perhaps due to compression. He had not before seen a growth of this character that had become positively gangrenous. This was the largest epithelioma of the cervix he had seen. During the removal of the mass, there was only a very slight hemorrhage. [The patient died of exhaustion and septicemia one month later.]

Dr. Watts asked if the gangrenous condition of the growth might not have been due to the vaginal injection of perchloride of iron.

Dr. Mundé thought it quite possible that the iron might produce such an effect, but the injection was made about three weeks before he saw the patient, and the vagina when he operated was not contracted.

Dr. Frank P. Foster asked if the effect of an injection of perchloride of iron would be to produce sphacelus of the tumor without affecting the vaginal wall.

The President replied that he had never seen such results. He also thought that the gangrene might be due to obliteration of blood-vessels in certain territories in the tumor, rather than to external pressure.

Dr. Mundé remarked that another interesting feature of the case was the entire absence of symptoms, except, occasionally, frequent desire to pass urine, until the sudden occurrence of hemorrhage.

Dr. Watts in this connection referred to a case in which a patient, who had felt somewhat out of health, was suddenly taken with quite profuse hemorrhage. Upon examination, her vagina was found about half full of a growth similar to that described by Dr. Mundé as existing in his case, although it could be determined that it grew from one lip of the cervix, and, getting up behind it, the os externum could be distinctly felt. The growth was removed with the écraseur, the base was thoroughly cauterized, but within two months it had returned, and reached a size fully as large as at first. It was removed a second time, and a second time it returned. It was again removed, and again it returned, and after the fourth removal it grew again within a few weeks after the operation. The patient then returned to her native country, France, and in Paris she was operated upon again. She had never had a symptom referable to the pelvic organs until the sudden occurrence of hemorrhage, and she lived more than a year after the first operation.

Dr. Mann referred to a somewhat similar case occurring in a woman fifty years of age, who first had severe hemorrhage without previous symptoms of uterine disease. On examination the entire cervix and the upper portion of the vagina were found involved in probable epithelioma. It was impossible to remove the growth, and the patient refused to have anything done in way of local treatment. Another severe hemorrhage soon occurred that threatened the patient's life, and she then passed from under his observation. How long the tumor had existed he did not know.

Stated Meeting, October 19th, 1880.

Dr. W. T. Lusk, *President, in the Chair.*

FIBROMA OF THE UTERUS.

Dr. Wm. T. Chamberlain presented a fibrous tumor which he had removed by means of Thomas' scoop. The os internum was dilated so that the lower border of the tumor could be felt, which was attached to the left superior and posterior part of the wall of the uterus. A flexible probe entered along that face of tumor to the depth of six inches, and along the left side of the uterus to the depth of three inches. Dr. Chamberlain assumed that the breadth of the attachment of the tumor was about one and a half inches. On account of the profuse hemorrhage which attended the operation, he was obliged to complete it as rapidly as possible with the scoop. The hemorrhage was controlled with injections of hot water, and the uterus having been tetanized for a week or more with ergot, no further bleeding ensued, and the patient made a satisfactory and rapid recovery. He thought that, had he fully appreciated the proportion between the breadth of its attachment and the size of the tumor, he would have hesitated before operating by that method. In other words, he would have treated the case with ergot for a while, with the view to exciting such uterine contraction as would have elongated and reduced the relative size of the pedicle.

PLACENTA PREVIA LATERALIS.

Dr. H. T. Hanks reported a case with the following history: A woman was taken in labor at 5 a.m. He was called at 6 a.m., and when he arrived found a large quantity of blood in the bed. The bag of waters broke before the blood appeared. On making an examination, a number of clots were found in the vagina, and a portion of the placenta was protruding from the os externum, which was dilated to the size of a silver half-dollar, and exceedingly dilatable. When Dr. Bullard arrived, whom he had summoned to assist him, he introduced the index and second finger into the os, dilated as rapidly as possible, pressed upon the protruding portion of the placenta, soon reached a leg, and at once performed version, with the result of delivering a living child at seven months, which lived a little more than an hour. About half of the placenta had been torn off, and Dr. Hanks thought that it must have reached entirely over the internal os before labor commenced.

THE PRESIDENT asked if any member had seen any considerable amount of hemorrhage from placenta previa lateralis? He remarked that he had seen quite a number of cases, but in none of them had any bad symptoms been developed, and the hemorrhage had ceased as soon as labor commenced.

DRY COLD AS AN ANTIPYRETIC.

THE PRESIDENT reported a case which illustrated the beneficial effect of dry cold as an antipyretic. A young man who had had typhoid fever was thought to be fairly convalescent, when he was taken with hemorrhage from the bowels. The patient lost at once about *three* pints of blood, and for the purpose of arresting the hemorrhage he applied an ice bag upon the abdomen. He soon discovered that the application of dry cold to the abdomen was followed by a reduction in temperature, and during the following ten days the fever was controlled exclusively by that means. One week ago last Saturday, he performed an ovariotomy, and on the day following the operation the patient's temperature rose from 101° F. to 103½° F., when he gave her two injections, per rectum, twenty grains each, of quinine. At the end of six hours after the last injection, there was no reduction of the temperature. The woman had been somewhat delirious, and he applied an ice bag to her head. She soon fell asleep, and at the end of an hour her temperature had fallen from 103½° F. to 102° F., and throughout the entire course of the after-treatment the temperature was controlled by the same measure. He presented these as simple clinical facts, with the suggestion that, if it was possible by means of dry cold to obtain the same results as had been obtained by the use of cold affusion, it was a matter worthy of consideration. The theory of Spencer Wells and Thornton is that the blood which passes through the head is so near the surface that constant refrigeration of that portion of the current of circulation will cool the entire body.

DR. HARRISON referred to a case of peritonitis, cause unknown, which he saw in consultation. Another physician had recommended the application of dry cold to the abdomen, and the ice bag had been kept constantly applied, but the temperature of the patient steadily ascended, and on the third day reached 104° F.

Dr. H. T. Hanks referred to a case of typho-malarial fever, in which he endeavored to reduce the temperature by the use of dry cold. An ice bag was applied to the abdomen, and although the temperature was lowered somewhat, he was not satisfied with the results obtained.

Dr. A. J. C. Skene thought that while cold, either dry or moist, is one of the most important means at our command, it also has a limited application as a means for reducing body temperature. In fevers and all inflammatory affections, one of the dangers is that which accompanies an extremely high temperature, but there is also another danger to be carefully considered, and that is failure of heart-power, especially in peritonitis. He thought that we always add to the danger from failure of heart-power if it was approaching when we use cold, and he believed this distinction should always be made before resorting to that measure for reducing temperature. He thought that the use of cold, either generally or locally, was a hazardous procedure when there was any evidence of danger from failure in heart-power.

VASCULAR TUMOR OF THE URETHRA.

Dr. Skene reported a case as follows: About three years ago he operated upon a lady for vascular tumor of the urethra. There was nothing special in the history of the case; the growth was removed, the base cauterized, and the patient went away. She was much more comfortable for a year than she had been previous to the operation, but was never entirely free from tenderness, but had not had further hemorrhage. At the end of a year, the tenderness began to increase, and finally became so annoying that the slightest touch was exceedingly painful. Coitus was abandoned entirely; and rising from the sitting posture or walking was attended by severe pain. There was no reappearance, whatever, of the neoplasm about the meatus urinarius. But he found, what is very often seen, a red spot or streak upon each side of the mouth of the urethra which was evidently the seat of subacute inflammation, and the parts were exceedingly tender. The physical signs of vaginismus existed. In other words, she had well-marked inflammation of the ducts situated upon either side of the meatus, and to which he called attention some time since in an article published in the Am. Journal of Obstetrics, April, 1880. He did, what he suggested in the paper, namely, slit the ducts open from within outwards, and they measured five-eighths of an inch in depth. After they were laid open, the canal was packed with cotton wet with iron to prevent them from uniting, and that was the extent of the treatment. At the end of a month, Dr. Skene saw the patient, when he learned that the tenderness disappeared entirely within a very short time, the edges of the canal had healed without closing the duct, the inflammation had entirely disappeared, and also all the evidence of vaginismus. He was sure that the neoplasm was the cause of inflammation of these ducts, and that, when he removed the tumor, only half a cure was accomplished. He was also satisfied that in many cases in which remains of the hymen are found and in which extreme sensitiveness is a prominent symptom, the origin of such tenderness and vaginismus is to be found in inflammation of these ducts; and that by laying them open, cure could be easily effected.

DYSTOCIA FROM HYDROCEPHALUS.

Dr. Paul F. Mundé reported a case with the following history: A woman in the Maternity Hospital was taken in labor early on Wednesday morning with her second child. In the afternoon, the house surgeon, a competent man, and with the consent of Dr. Mundé, applied the forceps twice, and in both instances the instruments slipped off entirely. He then reached the conclusion that the child was probably hydrocephalic, and again sent for Dr. Mundé, who saw the case soon afterwards, and found that the head extended several inches above the symphysis pubis, and had not entered the pelvis, although there was no narrowing of the superior strait. At one portion of the head there was evidently a defect in the osseous development that extended along the coronal suture. No fluctuation could be detected. The fetal heart was beating normally. Dr. Mundé then applied the forceps himself, not feeling exactly certain with reference to diagnosis. They were introduced without difficulty, but gradually gave way without the head yielding in the least. He then introduced a trocar and withdrew about three pints of serous fluid from the head of the fetus. The head then collapsed, and it could be distinctly felt well above the superior strait. Dr. Mundé again applied the forceps, thinking that he might, perhaps, deliver a living child, for the fetal heart was yet beating. Again he was unable to extract the head. The blades of the forceps at both operations were entirely within the cavity of the uterus. He then trephined, opened the calvarium, and extracted the head with the cranioclast. The mother did very well for several days, but died on the seventh day of septic endometritis. The case was interesting because of the rarity of hydrocephalus, the evacuation of the fluid with the trocar, and the use of the cranioclast, which was that of Braun's, of Vienna, first brought to this country by

Dr. Mundé. The child was exceedingly large; but when he grasped the facial bones between the blades of the cranioclast the head followed with only a moderate amount of traction.

Dr. Gillette regarded the question of diagnosis as exceedingly interesting in cases of hydrocephalus, and he believed that the ordinary method of making a digital examination was entirely inadequate for that purpose. He thought it necessary to introduce the entire hand so that all the sutures could be felt. He had seen one case several years ago and reported it to the Society. Manual examination he regarded as an essential to correct diagnosis.

Dr. Mundé remarked that external palpation gave evidence of such an enormous head that he was not able to see what else it could be except a case of hydrocephalus. He thought that in nine-tenths of the cases diagnosis could be made by external palpation and one finger in the vagina.

The following officers were elected :

President: Dr. James B. Hunter.

Vice-Presidents: 1st. Dr. Henry D. Nicoll ; 2d. Dr. C. S. Ward.

Corresponding Secretary: Dr. E. Noeggerath.

Recording Secretary: Dr. F. P. Foster.

Treasurer: Dr. G. S. Winston.

Pathologist: Dr. H. J. Garrigues.

Stated Meeting, Nov. 2d, 1880.

Dr. James B. Hunter, *President, in the Chair.*

FLEXIBLE CELLULOID PESSARY.

Dr. W. M. Chamberlain presented several pessaries made of flexible celluloid with a core consisting of a single flexible copper wire. He regarded the new instrument as an important improvement upon the flexible vulcanized pessary which he presented about a year and a half ago. He stated that the celluloid covering was non-absorbent, and incorrosible by any of the natural acid secretions of the body. The pessary is made by Otto & Sons, 64 Chatham street.

TUMOR OF THE PAROVARIUM—INCISION INTO THE BLADDER—DRAINAGE OF THE SAC—DEATH IN TWENTY-SIX HOURS.

Dr. E. Noeggerath presented a specimen, accompanied by the following history. The patient from whom the tumor was removed was a woman, æt. 40 years, the mother of two children, the youngest being seven years old. Her last menstruation occurred in February, 1880. About six years ago, she first noticed that she had a tumor in her abdomen, but it gave her no marked inconvenience, except that arising from enlargement, until the beginning of September, 1880, when she experienced pains that she likened to spasm, and most severe near the diaphragm.

During the last four years, she had profuse leucorrhea, and great difficulty in micturition. Dr. Noeggerath saw her, for the first time, in the beginning of October, 1880, and then recognized a large ovarian tumor, to which a smaller tumor seemed to be attached in the right hypogastric region. The House Physician in Mount Sinai Hospital had tapped the patient in August, 1880, and at that time the small tumor moved downwards with the subsidence of the large mass, thus leading to the inference that there were no adhesions, certainly not in the upper part of the abdomen. Dr. Noeggerath operated on the 18th of October, at three P.M. Chloroform was given, but before the abdomen was opened, the patient's pulse became small and irregular, and she vomited. Ether was then substituted for chloroform, and the operation was continued by cutting through the abdominal walls, when a dense layer of cellular tissue was encountered, but he was unable to find any peritoneum. He then introduced a trocar and drew off about a pailful of true colloid material, with a large amount of fat, and then proceeded to open the tumor in such a way as to leave the trocar in situ—lifting the mass up and cutting on the trocar. He was then convinced that there were strong and very extensive adhesions between the mass and the abdominal walls. He continued cutting and finally reached a cyst which he opened; and, after he had opened it, he found that its apex reached upwards to within two and a half inches of the umbilicus. Upon closer examination, he found that he had opened the bladder, which had been carried upwards and become so attached to the anterior wall of the abdomen as to appear like a portion of the cyst itself. The opening was then sewed up with catgut, and the bladder was kept empty with a catheter. The operation for the removal of the tumor was then continued, when it was found that the thickened peritoneum could be readily detached from the abdominal walls, but the tumor could not be separated from the peritoneum —the cyst-wall and the peritoneum were so completely united that they appeared to be a single structure. He then lengthened the abdominal incision to an inch and a half above the umbilicus. Suddenly the patient became very pale, and, upon close examination, it was found that the large cavity of the tumor was filled with fluid blood. No bleeding vessel was discovered, but after removing all the blood, there was found, in one of the pouches of the tumor, a very soft mass, about half as large as a kidney, which was the source of the hemorrhage. How it had been injured he was unable to say. A thick ligature was thrown around the base of the mass, and the bleeding at once ceased. In the mean time, the patient had become very anemic. The cutting operation was discontinued because of the extensive adhesions and the low condition of the patient, and the case was further treated by simple drainage of the sac. An antiseptic bandage was applied and the patient was removed to her bed. At first she rallied somewhat, but death occurred twenty-six hours after the operation as the result of acute anemia complicated with septicemia. On the morning following the operation, the patient's temperature was 105° F., when twenty grains of quinine were given per rectum, and within three hours the temperature fell to 99° F. At autopsy, besides finding very extensive adhesions, it was found that the tumor had no pedicle. In its lower section, the tumor was a part of the broad ligament, and, therefore, had the operation been continued it would have been necessary to leave the lower part of it to be treated by drainage. There was no peritonitis. Dr. Noeggerath remarked that, so far as he knew, this condition of affairs had been described in literature only once. Further, that he did not know how he could avoid the same accident in another case, of like character, unless, as was not generally done, by introducing the catheter sufficiently high into the bladder to determine its exact relation with the surrounding parts. With reference to the opening made into the bladder, he thought that it amounted to nothing more than the incision in the supra-pubic operation for stone, and that no special danger arose from the accident; for at the autopsy it was found that union by first intention had taken place. He further remarked that acid urine flowing over tissues does not retard the healing process.

Again, the tumor might be called one of the broad ligament, yet he thought it improper to give it that name. Heretofore it has been customary to speak of tumors containing a serum-like fluid containing only a slight quantity of albumen, and which after being tapped once or twice are not apt to recur, as tumors of the broad ligament; but lately it has been found that such tumors originate in the parovarium. [He then presented a specimen illustrating a monocystic tumor of the parovarium, about an inch and a half in diameter, and just beginning to encroach upon the broad ligament. The same variety of tumors might be polycystic, which are characterized by the development of papillomata upon the inside, and the presence of vibratile epithelium.] Ovarian tumors which extend into the broad ligament do not possess any histological formations differing from that found in ordinary tumors originating in an ovary, and not extending into a broad ligament. He believed that the term "tumor of the broad ligament" should be applied only to those tumors which have really developed in the broad ligament, and which are much more dangerous than those usually described as tumors of the broad ligament, but which are commonly parovarian.

Stated Meeting, November 16th, 1880.

DR. JAMES B. HUNTER, *President, in the Chair.*

SEPTICEMIA AND DEATH FOLLOWING THE REPEATED INTRODUCTION OF SPONGE AND TUPELO TENTS.

DR. WM. T. LUSK presented a specimen with the following history: Five years ago, a patient came to the hospital with a fibroid polypus, filling the cervix uteri and arrested at the os externum. He split the cervix, drew the polypus down, which was very large, and removed it. Recovery took place rapidly. The next year she returned to the hospital with symptoms indicating the presence of a polypus, and upon examination one of large size was found. This also was removed, and the patient had a sharp attack of pelvic peritonitis after the operation, but apparently recovered completely.

At the end of the year following, she returned to the hospital with the impression that there was another polypus in her uterus, had some hemorrhage and pain, but after dilating the cervix freely with a sponge-tent and examining carefully, it was decided that the uterine cavity was empty. A number of small fibroids, however, could be felt in the wall of the uterus.

A year subsequently, she again returned to the hospital, complaining as before, and again her cervix was dilated with sponge-tents, but the examination was negative in results, and she left on the third day. This year she returned again, on account of intolerable pain. She was anesthetized, several fibroids could be felt in the anterior wall of the uterus, and one large one in the posterior wall that could be moved freely from side to side. A tupelo-tent was introduced, but the os internum was found to be extremely rigid and did not yield. On the following day, Dr. Lusk introduced a sponge-tent, of moderate size but long, and on the next day it was removed, when it was found that the half-inch of the tent inside the os internum had scarcely swollen, such was the rigidity of the cervix. Dr. Lusk concluded that the cervical rigidity was to be explained on the supposition that the mucous membrane had been injured by the sponge-tents introduced a year or two years ago, and that cicatricial contraction had followed. The cavity was washed out thoroughly with carbolized fluid, and another tupelo-tent was introduced, which on the following day was found in the vagina, and the cervix was well expanded. The uterine cavity was then examined and found healthy. The next morning her respiration was rapid, and her temperature 104½° F. Opium and quinine were given, and in the course of a few hours her temperature fell, and during the next two days she was very comfortable and hopeful. At 8 A.M. on the next day, she was suddenly seized with a violent chill, at 10 A.M. was pulseless, and at 11.30 A.M. she died.

At the autopsy, the intestines were found everywhere agglutinated together and to the walls of the uterus; there was no fresh peritonitis. On opening the uterus, a cicatricial band was found at the os internum, otherwise the inner surface of the organ was perfectly healthy. The anterior wall of the uterus contained numerous small fibroids, but where Dr. Lusk supposed a fibroid existed in the posterior wall, he found an abscess with gangrenous walls, situated behind the uterus, and he believed that it had been affected by the sponge-tents in such a manner as to give rise to an overwhelming septicemia that caused the patient's death within a few hours. There was no evidence of lymphangitis. The liver and spleen were enlarged, and the liver contained white spots that he regarded as infarctions. He was unable to find the ovaries.

Dr. T. A. Emmet reported a case in which septic peritonitis followed the use of a sponge-tent, the disease developing on the seventh day after its introduction. He had come to feel that he almost took the death of the patient in his hands when he used a sponge-tent, and he never allowed the patient to get out of bed until the day following that on which it was removed. All other things being equal, it is among the nervous and hysterical that trouble, due to the use of a sponge-tent, is most liable to occur.

Dr. M. D. Mann referred to a case in which a sponge-tent was carried within the uterine cavity four days without giving rise to serious symptoms.

Dr. Emmet related a case in which the sponge-tent was retained in the uterus five days without serious inconvenience, other than the intolerably offensive discharge.

PELVIC CELLULITIS, ABCESSES, AND DEATH FOLLOWING DILATATION BY A TUPELO-TENT AND A STEM-PESSARY.

Dr. J. E. Janvrin presented a specimen with the following history: It was taken from the body of a German woman, whose cervix uteri he removed with the galvano-cautery two years ago last June, on account of epithelioma. She made a complete recovery, and there was no return of the malignant growth. For six months after the operation, he kept the opening into the uterus well dilated, and then the patient went to Europe, where she remained until the present autumn, when she reported herself to Dr. Janvrin early in October. He then found complete occlusion of the os internum, which had probably existed for a number of months, as she had not menstruated for five months, and for several months preceding that, her monthly periods had been very painful. So complete was the occlusion that he was unable to find the opening with a probe. There was no evidence whatever of the return of the epithelioma. She then went to the hospital, October 20th, and under anesthesia he succeeded, after some difficulty, in passing a probe, then a Simpson's sound, and finally a quite large dilator. In order to prevent recontraction, he introduced, temporarily, a tupelo-tent which dilated still more, and on the following morning he removed the tent and inserted a Greenhalgh intrauterine stem-pessary. It was just at the time when menstruation should occur, and the flow, somewhat profuse, but natural, came on within thirty-six hours after the introduction of the pessary.

On the 25th, he found slight evidence of pelvic cellulitis, and the patient was at once put upon the use of opium regularly—she had received some opium previously—and the hot vaginal douche. The pessary was removed.

On the 26th, there was decided evidence of cellulitis, and also of threatening pelvic peritonitis, both of which developed into a severe attack. About four days subsequently, he found a small pouch in the cul-de-sac, and on making moderate pressure pus oozed from a small opening in it and came into the vagina.

On the 3d of November, he discovered a mass as large as his fist to the right of the uterus and high up behind the cecum, but there was no evidence that it had any communication with the sac in Douglas's pouch.

On the 4th of November, there was evidence of sloughing about the opening leading into the cavity of the uterus, and on the 5th she had quite a severe hemorrhage. Dr. Chambers, house physician, tamponed the vagina as well as could be done while the patient was in bed, and the bleeding was controlled. Notwithstanding the tampon, considerable hemorrhage occurred during the next eighteen hours, and then Dr. Janvrin had the patient placed upon the operating table, removed the tampon, found the opening through the cervix in a sloughing condition, and blood oozed out very rapidly. The cavity was quickly washed out with carbolic acid, and the tampon immediately reapplied. There was no further hemorrhage, but the patient died from loss of blood, on the evening of that day, at six o'clock.

At autopsy, three distinct collections of pus were found: First, in the cul-de-sac; second, about the opening into the uterus, from which the hemorrhage occurred; and third, the large collection above, amounting to six ounces, which was encysted, and outside of the peritoneal cavity. The large collection was just outside of the right ureter, which was considerably inflamed.

Dr. C. C. Lee thought that a sufficient amount of local irritation was very liable to be produced by even a tupelo-tent, and subsequently a stem pessary to give rise to inflammation, especially if used just at the occurrence of menstruation, when there is increased susceptibility to local irritation.

Dr. Emmet said it must be also borne in mind that the cicatricial tissue in such a case increased the liability to the occurrence of serious results after local irritation.

Dr. Janvrin remarked that, in view of these facts, he used special precautions against the occurrence of cellulitis and peritonitis, such as rest in bed, the use of opium, and the hot vaginal douche.

The President thought that the unfavorable result in Dr. Lusk's, and also Dr. Janvrin's case, was due to the irritation produced by mechanical force, rather than to the material used in making the dilatation.

DISEASED OVARIES.

Dr. H. J. Garrigues presented the left ovary of a woman operated upon by Dr. Bozeman, October 29th, 1880. It was slightly larger than normal, measuring four by two and one centimetres, and looked very much like a portion of brain. Upon close inspection it was seen that some of the larger gyri were cysts filled with fluid, and the smaller ones were solid, except one, which contained fluid. One of the small nodules was examined with the microscope, and found to be composed exclusively of connective tissue. He thought that the specimen went very far towards substantiating the theory that ovarian tumors originate in the Graafian follicles. The right ovary had been changed into a large tumor, which was almost completely solid, only a few cysts, not larger than a walnut, existing. The pedicle was very short.

Dr. Janvrin remarked that he assisted Dr. Bozeman in his operation. Peritonitis developed, soon became general as shown by the autopsy, and the patient died on the third day.

AN ABSORBED SILK LIGATURE AFTER OVARIOTOMY.

Dr. T. A. Emmet presented a silk ligature that appeared in an opening which occurred in the line of the drainage tube six months after ovariotomy. The abdominal incision closed completely soon after the operation. In August last, an abscess formed, and the ligature made its appearance.

Dr. Lee asked Dr. Emmet if a greater length of suture would be used with the shoemaker's stitch.

Dr. Emmet answered that he did not think the length was increased, because the silver wire hugged the tissue closer, and he believes it is more likely to be covered in, on that account, than the silk ligature. He thought that a metallic substance was more likely to be encysted than such a substance as silk.

Dr. Garrigues referred to a case in which both silk ligatures were found fresh and not incapsulated two years after an ovariotomy.

TOLERANCE TO AN INTRAUTERINE STEM-PESSARY.

Dr. C. S. Ward reported a case in which the patient wore an intrauterine glass plug (Thomas') without harm for five months; it was retained in position with Thomas' retroversion pessary.

Dr. Mundé related a case of retroversion of the anteflexed uterus with sterility, in which the patient wore a hard-rubber intrauterine stem supported by an Albert Smith pessary, uninterruptedly for five and a half months, without the slightest inconvenience, even coition being frequently practised.

Stated Meeting, Dec. 7th, 1880.

Dr. James B. Hunter, *President, in the Chair.*

FIBROUS TUMOR OF THE CERVIX UTERI.

Dr. T. Addis Emmet presented a fibrous tumor of the uterus, with the following history : The patient, thirty-one years of age, married, and sterile, was admitted to the Woman's Hospital on the third of November, 1880. During the last ten years her health had not been good ; but it was only during the last few months that she had noticed the rapid growth of the tumor. When he examined the patient first, the tumor was presenting through the os and into the vagina, as large as his two fists, and filled the vagina completely. There had not been any loss of blood except during menstruation, which had been profuse only within the last few months. The tumor remained in about the same condition for some time. Dr. Thomas saw the case in consultation, and advised an operation, because of an appearance which indicated that the mass had already begun, or would soon begin to break down. On the 23d of November, Dr. Emmet began the removal of the growth by cutting away with the scissors one portion after another of that part which presented in the vagina, and did not enter the uterine cavity until what was made a pedicle by traction was divided. The case was unlike any that he had ever seen, because the tissue of the tumor within the uterus had a character entirely different from that which obtained in the vaginal portion, namely, was much softer, more like muscular tissue, and bled readily. He was unable to use the scoop on account of the character of the tumor. The operation lasted two hours and three-quarters, and at the end of that time the patient was very much exhausted. He washed out the uterus and applied iodine. Shortly afterwards there was an apparently inverted uterus, which was reduced with very great ease ; but the uterus contracted only partially, so that a cavity remained as large as his fist. The mass removed weighed three and a half pounds. Fearing to leave the cavity as it was, he tamponed it with cotton wet with carbolic acid and glycerine, which was removed the following day. The patient rallied and did fairly well until the sixth day; but without apparent cause she died at the end of the seventh day, with a temperature of 104–5° F. There were no symptoms of blood-poisoning.

At autopsy no real cause for death was found. The liver and kidneys were fatty; none of the vessels in the pelvis were obstructed. But the most remarkable feature of the case was the fact that, although the tumor extended upwards to the umbilicus and enlarged the abdomen to the size of a uterus six months advanced in pregnancy, it was situated entirely below the internal os : it developed in the neck of the uterus, and ascended between the bladder and the uterus. The body of the uterus appeared like an outgrowth from the posterior wall of the tumor ; the cavity was only slightly enlarged ; when an ordinary sound was used at the first examination, he was unable to introduce it more than two inches; but a jointed uterine sound was passed, it was thought, into the canal thirteen inches; it had evidently doubled upon itself in the vagina behind the tumor.

Dr. Emmet thought that the loss of blood consequent upon the inability of the uterus to contract properly was the prominent cause of danger to life.

Dr. T. G. Thomas remarked that, had any one told him at the time he made his examination that the tumor sprang from the cervix and did not invade the body of the uterus, he should not have believed him. The tumor seemed to be projecting into the vagina, and nothing could be discovered that would lead one to think that the uterine cavity was not implicated by the growth. He believed that the operation would be a serious one; and yet it was absolutely necessary, as the tumor had the appearance of one which would soon slough.

DR. EMMET remarked that another difficulty in the case was the fact that the tumor was larger above than the pelvic strait. Its lowest attachment was just within the os.

DR. H. J. GARRIGUES thought the profuse hemorrhage was due to the fact that the tumor was in the cervix and not in the body of the uterus. If it had been in the body, probably the contraction of the organ would have arrested it. Certainly no one previous to the operation would have believed that it was any other than a fibroid tumor of the body of the uterus.

DR. BACHE EMMET said that nothing like the body of the uterus was perceptible through the abdominal walls at the time of the operation. He suggested that the uterus was spread out as a part of the mass.

DR. T. ADDIS EMMET remarked that he was unable to understand how that could be possible, because all of the uterus above the internal os was perfectly normal.

THE SILK LIGATURE AFTER OVARIOTOMY.

DR. THOMAS referred to a case in which the silk ligature used in tying the pedicle in ovariotomy ulcerated through into the bladder and was removed from the urethra three months subsequent to the operation. It was entirely unaltered.

A FATAL CASE OF BATTEY'S OPERATION.

DR. THOMAS reported a fatal case of Battey's operation as follows: The patient was operated upon in the Woman's Hospital. As soon as she recovered from the ether she began to vomit; at the end of twenty-four hours her temperature rose, and at that early period peritonitis developed. The temperature was kept down by the use of Kibbee's cot, and she lived six days. Autopsy could not be obtained.

OVARIOTOMY—ADHESION, DILATATION, AND INCISION OF THE BLADDER—RECOVERY.

DR. THOMAS also reported a case of ovariotomy with the following history: The patient, who came from Montreal, Canada, had a very large ovarian tumor, and he proceeded to remove it by making first an incision three and a half inches in length in the abdominal wall, and after cutting through the peritoneum, he reached a large fleshy mass, which caused him to prolong the incision towards the umbilicus. What it was he did not know. One of the gentlemen present suggested that it was a broad ligament, but on introducing the fingers it became evident that it was not a broad ligament. He then extended the incision to nearly the umbilicus. Further examination satisfied him that the mass was a single sac. It then suddenly occurred to him, from a case which Dr. McLean, of Troy, had, that it was the bladder. On further examination, the mass was found to be everywhere adherent to the tumor. He then attempted to pass the catheter, for the purpose of ascertaining at once whether or not it was the bladder, but he was only able to demonstrate how great the difference is between theory and practice, for it was utterly impossible to pass the catheter. On account of the pressure produced by the tumor, the instrument could not be passed beyond the symphysis pubis, and what seemed to be practicable was impossible. The question was, what should be done? The adhesions were so uniform and so firm that only one thing remained to be done, and that was, to cut into the bladder. Accordingly, he made an opening through its anterior wall, passed his finger within, recognized the inner surface, and then using the finger as a guide, he broke down and cut the adhesions without further injury to the bladder, which in the course of the operation was brought entirely outside of the abdominal cavity.

The attachments which were cut bled freely, and the operation was completed rapidly. He closed the lower part of the abdominal incision in the usual manner, and then, using Peaslee's needle, passed the suture through the abdominal wall upon one side, then through the wall of the bladder upon the same side, then through the wall of the bladder upon the other side, and lastly through the abdominal wall on the opposite side; in other words, stitched the bladder into the abdominal wound. A catheter was kept in the bladder, and the patient did perfectly well, with the exception of the discharge of about an ounce of pus from the wound. On the fourteenth day, a little urine came through a filiform opening in the abdominal incision, but by the continued use of the catheter that disappeared. The patient was out of danger, and had done as well as any patient after ovariotomy, the opening in the bladder not having given rise to any complications whatever. At Dr. Thomas' request, Dr. Garrigues had carefully looked up the literature of the subject, and had found six cases upon record, in some of which the bladder was recognized before, in others not until after it had been opened, and all six terminated fatally. Dr. Thomas thought that his case would have so terminated, had he not been forewarned by the case reported by Dr. McLean, of Troy.

Dr. T. A. Emmet asked how far above the pubis the opening in the bladder was made.

Dr. Thomas thought it was about two and a half inches.

Dr. Emmet remarked that the case was especially interesting when taken in connection with one which he once had, and illustrated that we cannot tap without danger. In his case the stomach and transverse colon were found spread out over the tumor, and in Dr. Thomas's case the bladder was spread out and reached high up. These cases show that aspiration cannot be performed without some risk.

EXCESSIVE VOMITING OF PREGNANCY—ARTIFICIAL ABORTION—RECOVERY.

Dr. Thomas further related a case as follows: A short time ago he was summoned to visit a patient who, it was said, was "vomiting herself to death." The following history was obtained. For ten or twelve years, she had been exceedingly anxious to have children, but had failed. Suddenly she demonstrated some of the symptoms of pregnancy. Her abdomen continued to increase in size, and at the end of the ninth month her labor terminated with the dispelling of a "phantom" tumor. Within two weeks after the pseudo-lying-in, she began to suffer from nausea and vomiting, which had continued for two months and a half when Dr. Thomas first saw her. As a result of the vomiting she had become excessively emaciated. The general result of all the examinations that had been made—for several medical men had seen her—was *nil.* Dr. Thomas reached the conclusion that the vomiting was due to one of two conditions, either malignant disease of the stomach or pregnancy, and for the purpose of obtaining positive evidence in one direction, proposed to the attending physician to introduce a sea-tangle tent, dilate the cervical canal, and explore the uterine cavity, but he objected because he felt sure that his patient was not pregnant. However, Dr. Thomas introduced a long small laminaria tent, and then another, and finally a fourth one was introduced. At the end of twenty-four hours he removed them, introduced the ordinary wire curette, and scooped out a fetus and its placenta about two and a half months old. The vomiting ceased at once, and the patient recovered entirely.

MALIGNANT OVARIAN TUMOR IN A CHILD.

Dr. T. A. Emmet mentioned the case of a child ten years old, in whom a malignant tumor of an ovary, weighing probably fifty pounds, had developed since last May. He regarded it as an unusual case.

OVARIOTOMY—ADHESIONS PREVENT THE COMPLETION OF THE OPERATION—UNUSUAL DEVELOPMENT OF FAT IN THE WALL OF THE CYST.

Dr. B. F. Dawson reported a case with the following history. He was called upon to treat a woman fifty years old, who had been told that she had an affection of the liver. On examination, he found that she was suffering from chronic pneumonia, and, noticing that she had a very large abdomen, he was told that it was "nothing but fat." Examining more carefully, however, he found a tumor, but was undecided at first with reference to its exact nature. Drs. Thomas and C. C. Lee subsequently saw the patient, and all agreed upon the diagnosis of ovarian tumor. The patient's symptoms increased very much in severity, and she presented the phenomena ordinarily associated with suppuration of an ovarian cyst. Dr. Dawson then drew off about two quarts of greenish fluid which, upon microscopical examination by Dr. Garrigues, was pronounced to be broken-down ovarian elements undergoing decomposition. With the view of giving the patient the only chance for life, he proceeded to operate for removal of the tumor on the second of December, at 8 A M. After making the abdominal incision, he found the adhesions so universal and so firm that it was impossible to remove the tumor, and he therefore emptied the cyst, put on the clamp, closed the wound, and removed the patient from the table to the bed. She died six hours afterwards. He was permitted to make only a partial autopsy, but succeeded in obtaining a small portion of the cyst which was submitted to Dr. Garrigues for microscopical examination.

Dr. Garrigues then submitted the following report upon the portion of the cyst obtained at the autopsy.

"*Thick layer of fat in the wall of an ovarian cyst.*

The lower part of the tumor was so intimately adherent to the base of the pelvis that the doctor could not get it out at the autopsy which had to be made in a hurry. The part sent is as large as the two flat hands. Nowhere is found any trace of proliferation, but these are preferably found in the lower part of the cyst, which here has been left in the body.

A part of the wall is nearly four mm. thick, and composed of the two usual layers bound together by loose connective tissue and easily separated from one another.

In other places, the wall becomes one cm. thick, the increase in bulk being due to fat accumulated in the outer layer. That it is real fat is proved by microscopical examination. The inner layer is entirely free from fat, and separates easily from the outer. In one place the fat is found quite superficially, only covered by a thin membrane, and forms a somewhat pedunculated lipoma of which only a part measuring 4 cm. in length by 2.5 in width is found on the specimen.

In another place is found a canal, 10 cm. long, which has a somewhat winding course. At one end it communicates with the interior of the cyst by an opening measuring 8 cm. in circumference. From here it becomes gradually thinner, like a funnel, and ends blind in the outer layer of the wall. Where it starts from the main cyst under an acute angle, a spur is formed. It consists of an outer white, fibrous layer, and an inner velvety, but here it is impossible to tear one from the other. The inner layer is red, like that in the main cyst. Microscopical examination shows that it is lined with columnar epithelium in highly fatty degeneration, like that of the main cyst of which it is only an appendage, or long, narrow bag, like the finger of a glove.

Furthermore, we find a large surface, 11 cm. long by 7 wide, where the fatty mass in the outer layer has been exposed by cutting away the covering membrane and lumps of the fat itself. This place is the one which adhered to the abdominal wall in front, just where the incision was made, and which during the operation was taken for pre-peritoneal fat. It is only 2 cm. removed from the opening made above it by the trocar.

Passing to the inner surface, we find it of the common yellow-red color. Some parts are more injected, others quite light-yellow, like fat, and a square, 4 cm. in all directions, is of a greenish color like the fluid. From this patch is easily removed a fine membrane which, under the microscope, proves to be epithelium in highly fatty degeneration, and round inflammatory elements. Under this membrane is found connective tissue, likewise in high degree of fatty degeneration, and full of round inflammatory elements, many of which have one or a few nuclei. In some places are also seen spindle-shaped cells with a lengthy nucleus.

In no other place than the greenish patch does the epithelium come off as a membrane. This purulent patch seems to correspond with the place where, two days before operating, the cyst was tapped.

On a snip from the outer surface of the wall is not found any epithelium nor endothelium. It has probably been agglutinated to other organs.

The fluid is purulent. Under the microscope it is composed of debris, with a few well-developed pus-corpuscles. It has a very offensive odor of butyric and other fat acids, and has acid reaction.

The presence of fat in the ovarian cyst-wall does not seem to have been described before. At least I have not found any allusion to it in the recent works on gynecology by Thomas and Emmet, nor in the special treatises on the Diseases of the Ovaries by Spencer Wells, Peaslee, and Olshausen, nor in Klob's Pathology of the Generative Organs of Females.

Occurring, as it here did, in the anterior part of the tumor, and so intimately connected with the abdominal wall as to form one mass with it, it is apt to be taken for pre-peritoneal fat, for the peritoneum is so blended with the tumor behind it that it is not recognized."

Dr. Dawson referred to an additional clinical fact, namely, the remarkable resonance obtained over the surface of the tumor, except at its lower portion. He therefore tapped low down, so as to avoid perforating the intestines, but when the abdomen was opened it was found that the tumor was adherent to the anterior wall of the abdomen, and no intestines were found in that region.

Dr. Thomas asked if the fatty material might not be a portion of the omentum.

Dr. Garrigues replied that it was not omentum, because it was in the cyst-wall. He further remarked that he knew it to be an ovarian cyst, because it was lined with columnar epithelium. Again, he thought it was an ovarian cyst because that variety was much more common than parovarian cyst, commonly called cyst of the broad ligament, and in the second place he thought that parovarian cysts never suppurated. Again, fat was not found in parovarian cysts.

Dr. Thomas referred to a case which he had some years ago at the Woman's Hospital. It had all the clinical aspects of a cyst of the broad ligament. He aspirated and completely emptied the cyst of a clear fluid which was almost entirely free from albumen. The patient did well, left the hospital, remained outside two or three months, returned with great emaciation and hectic fever, and an operation for removal of the tumor was undertaken as offering the last chance of saving life. The cyst was found entirely adherent and filled with fetid pus. Autopsy showed that it was a cyst of the broad ligament.

Dr. Thomas also mentioned another case in which he opened a parovarian cyst through the vagina. The patient had symptoms similar to those observed in Dr. Dawson's case.

Dr. Noeggerath again directed attention to the fact that the term "cyst of the broad ligament" does not describe, either histologically or anatomically, the true character of the tumor; and he again proposed the use of the term *parovarian* cyst; so that we have now to ask, is it an ovarian or a parovarian cyst?

As to whether a given cyst is ovarian or parovarian, if ciliated epithelium is found, it is probably parovarian; while, if the epithelium is simply columnar, it is more likely to be from an ovarian cyst. Again with reference to the coverings of the cysts; if it be a true parovarian cyst, we should find flat epithelium—endothelium—in its covering; while if it be a true ovarian cyst, we should find columnar epithelium. Dr. Noeggerath also referred to the fact that in certain animals the ovaries are normally covered with a layer of fat. In the human ovary, large tracts of fat, deep in the tissue of the ovary, are found normally. The cyst presented by Dr. Garrigues was evidently an ovarian cyst, either with fat developed in the tissue itself, or an exudation on and into the walls of the ovary that had been transformed into fat afterwards.

DR. GARRIGUES agreed with the terminology offered by Dr. Noeggerath, and so also did Dr. Thomas.

DR. GARRIGUES thought it was impossible to say, by the quality of the fluid, namely, that it is clear and without albumen, that the cyst was parovarian; for fluid of the same character had been found in ovarian cysts. But if columnar epithelium is found, it is certainly an ovarian cyst.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, December 2d, 1880.

The President, DR. LEWIS D. HARLOW, *in the Chair.*

DEATH FROM METRITIS.

DR. M. O'HARA exhibited to the Society the uterus and appendages from a case of gangrenous metritis resulting in septicemia and death two weeks after abortion criminally induced at seven months.

There were no evidences of peritonitis, and no pus was found in the liver or spleen, but small collections were found in the uterine tissue.

DR. WM. T. TAYLOR read the history of a

CASE OF TRIPLETS

which had occurred in his practice in 1852. The mother was a small woman, twenty-eight years of age, in the seventh month of her fourth pregnancy. The triplets were not diagnosed before labor, which came on unexpectedly after severe exertion. The first child was born in a breech, the second in a vertex presentation, and the third was expelled still enveloped in the membranes. All the children were alive (two females and one male), and all died within twenty-four hours. The mother made a good recovery. According to Churchill's statistics, triplets occur once in 5,831 cases.

Dr. R. P. Harris remarked that the delivery of five or six children at a birth is frequently reported; a few of the cases of quintets are well attested, but anything beyond this is apocryphal. The most remarkable instance of fecundity of which he had personal knowledge was the case of a lady of Yonkers who had seven living children in one year: triplets at one birth, and eleven months later a set of four.

Dr. John Snowden had one patient who had three children at one birth, and twins eleven months afterward; the triplets died, but the twins lived.

Dr. W. S. Stewart had had one case of triplets, two girls, weighing six pounds each, and a boy, weighing six and a half pounds. The placenta was single and was very large. The girls lived, but the boy died. The mother was very short in stature.

Dr. R. P. Harris remarked that the mothers of triplets were generally of less than the normal stature. A friend of his visiting a farmer, met at the table three sons twenty-eight years of age; they were triplets, and were remarkably similar in feature and expression.

CONGENITAL PEMPHIGUS.

Dr. R. G. Curtin had recently delivered a child which appeared to have been injured about the buttocks and thighs; examination revealed numerous denuded spots, some as large as a nickel-piece; they were due to ante-natal pemphigus, a few small bullæ remained about the lower limbs and feet. The child was born at the eighth month; the mother was very weak, but there was no recognized syphilitic taint.

Dr. R. A. Cleemann was under the impression that infantile pemphigus was always syphilitic.

Dr. W. T. Taylor had seen pemphigus on infants, and always considered it syphilitic.

Dr. A. H. Smith had had in his care the wife of a man who had been twice under treatment for syphilis before his marriage, but at that time no trace of the disease could be discovered. The first and second children were born dead; the third child was born with pemphigus upon it; the fourth developed a crop of bullæ after some weeks. Later children showed no syphilitic taint.

Dr. A. H. Smith related the history of a case of

PARALYSIS OF THE SPHINCTER ANI FROM EXTREME DISTENTION DURING LABOR.

The tissues were very rigid and the vagina small; dilatation of the os was slow; the forceps were applied, and the head was brought down with great difficulty. When it was near the floor of the pelvis the vagina had become so tense that laceration seemed imminent. The forceps were removed, and three fingers were passed far up the rectum, the hand being pressed forcibly back against the coccyx to get the fingers over the convexity of the child's head and hook them into the orbits; traction was made thus, and with the other hand making pressure over the occiput, the head was caused slowly to descend; as it came down, the fingers were shifted to the mouth, and then to the chin. During this operation the spincter was very much strained. The vaginal outlet was small and unyielding, but the tension was relieved by lateral incisions; the perineum passed back, and the head escaped, without injury to even the fourchette; one of the lateral incisions had healed in three days, and the position of neither could be determined ten days after the labor. As soon as the placenta was delivered, a careful examination of the vagina was made, and a posterior fissure was discovered so deep that a finger was passed into the rectum to ascertain whether a vagino-rectal fistule had been formed; the fingers in vagina and rectum were separated by a thin membrane. The recovery was complete. On the third day a rectal enema was directed, but could not be retained on account of complete paralysis of the sphincter; examination showed the belly of the muscle to be complete all around. Flatus and the enemata continued to be passed for ten days, at the expiration of which time control had completely returned. The treatment consisted of the application of stimulant poultices and hot cloths.

Dr. R. G. Curtin remarked that one operation for the cure of anal fissure consisted in causing temporary paralysis of the sphincter by forcible and sudden dilatation.

Dr. R. A. Cleemann called attention to the fact that permanent paralysis has sometimes followed that method of treatment. In a case of natural labor under his care, the perineum was lacerated; the laceration, however, not involving the fibres of the sphincter, but all control of the latter was lost; after the lapse of ten days the wound was healed and the power returned.

Stated Meeting, Feb. 3d, 1881.

DR. EDWARD L. DUER, *President, in the Chair.*

DR. B. F. BAER read for Dr. William Goodell the following history of a

SUPPOSED OVARIAN CYST, THE FLUID OF WHICH DID NOT CONTAIN OVARIAN CELLS.

On July 26th, 1879, Mrs. X. came to my office with the following history : She is forty-six years old, has been married for twenty years, and has had three children, the youngest of whom is now twelve years old. Her catamenia anticipate, but are neither free nor painful. Two years ago she discovered an abdominal tumor as large as her "two fists." For this she consulted the late Dr. W. L. Atlee and a distinguished surgeon of this city, who independently pronounced it to be a uterine fibroid. For two years it gave her no trouble whatever, but about a month ago it began to grow rapidly, and it now reaches the umbilicus, giving her a very painful sense of bursting.

I found the cervix effaced, and the os externum a mere hole in the vaginal cul-de-sac. It admitted my finger as far up as the os internum. At that point I feel a small fibroid nodule. A fluctuating tumor as large as the adult head rounded out the lower portion of the abdomen. Behind it lay the womb, which was slightly prolapsed, but otherwise in a natural position. It was three inches long. The sound could be easily turned on its axis half a circle, but not further, and I was unable to decide whether it had turned the womb, or had merely revolved within the uterine cavity. Any movement of the tumor was communicated to the finger introduced into the cervical canal, but apparently not to the same extent to the sound similarly placed. My diagnosis then was : a small fibroid of the womb, together with either a fibro-cystic tumor of the womb or an ovarian cyst.

September 25th, 1879.—The tumor has grown so rapidly within the past eight weeks that she is greatly oppressed by its bulk, and by a very painful sense of bursting. So I aspirated it to-day, and removed not quite eight quarts of a reddish fluid, evidently stained with blood. The cyst-wall collapsed wholly beyond recognition, with the exception that a small and soft bunch was felt in the right broad ligament. I therefore decided that it was a monocyst of the right ovary. To confirm my diagnosis, I sent a sample of the fluid to my friend Dr. H. F. Formad, who had hitherto never failed to find the ovarian cell in the fluid of those cysts which I had subsequently removed and found to be ovarian.

To my surprise, he reported that he could not discover a single ovarian cell.

October 6th.—To-day she came to my office. I found the cyst rapidly refilling. The womb was now retroflexed, and could be readily moved and turned by the sound. In view of the absence of the ovarian cell, and in view of the mobility of the womb, I concluded that the cyst was one of the right parovarium. October 31st.—The cyst has wholly refilled, and she was anxious to have it emptied, but I persuaded her to wait a week longer. Nov. 8th.—I went to her house to-day, according to agreement, to aspirate the cyst, but found her suffering from "colicky pains," and the tumor not to be discovered. While my patient was stooping to pick up some heavy article, about an hour before my arrival, the cyst had burst. For a few days there was an unusual secretion of urine, and more or less of abdominal pains, but she got up as well as ever. The sac again refilled, and on Dec. 16th I aspirated it, pumping out thirteen quarts of a beautifully clear fluid, with a slight emerald tint. This was also examined by Dr. Formad, who again failed to find the ovarian cell. The need for this tapping was the urgent "bursting feeling." On January 21st, 1880, I removed ten and a half quarts of the same limpid fluid. February 13th, the sac again burst spontaneously, producing so much peritoneal pain and collapse that I was hurriedly sent for. Under large doses of opium she was up and about in three days' time. On March 22d, April 21st, May 18th, and June 8th, I aspirated the sac, removing each time from nine to eleven quarts of fluid. On each one of these occasions she experienced very severe pain in the right hypochondriac region while the sac was collapsing.

She now went to her country house, where the sac burst twice with the same phenomena of "cramp-colic," and her husband, who is a physician, aspirated it twice. Upon her return to the city I aspirated the cyst on November 6th and again on November 29th. Each time, while the sac was collapsing, she felt the same severe abdominal pain, and each time the fluid was unchanged in hue and in quality. I had urged the removal of the cyst early in the spring of 1880, and indeed on one occasion every preparation for the operation, even to fixing the day and to securing a nurse, had been made. But her health was so good that her husband would not give his consent. Finally, however, in view of the danger of adhesions forming from the repeated bursting of the sac, I wrung from him the desired permission. So on the 18th of last December I removed the cyst, being aided by the attending physician, Dr. L. G. Bauer, and by Drs. B. F. Baer, Aaron F.

Shelley, Cheek, Farr and Harwood. The cyst-wall was exceedingly thin and of a beautiful conjunctival blue. The sole adhesion was a narrow attachment to the right portion of the omentum, which, upon the collapse of the sac, became a long band. This attachment was evidently the cause of the pain felt in that region whenever the fluid was removed. The cyst was ostensibly a degeneration of the left ovary. A short and very broad pedicle was tied, cut and dropped in, and the tumor removed. As the right ovary was enlarged by a number of minute cysts it was also removed. The womb was slightly enlarged by a small fibroid in its hind wall. The operation was performed with every antiseptic precaution, and the wound healed up without even staining the dressing of salicylated cotton-wool which lay next to it. Not a single untoward symptom took place, and the lady is now sitting up.

Upon examining the tumor carefully after its removal, I was by no means so sure that it was an ovarian cyst. For, in the first place, the oviduct did not seem to run over the tumor, and have its fimbriated end lost in it, as is usual in such cysts. In the second place, at the base of the cyst-wall, and just above the stalk, lay a small multilocular cyst filled with colloid matter. This seemed to me to be either the only child-cyst the mother-cyst contained, or else a degenerated ovary.

Upon submitting the cyst-wall to Dr. Formad for examination, I am informed by him that the tumor is probably a cyst of the parovarium, and that the supposed child-cyst is a degenerated ovary. This decision not only confirms me in the opinion of the diagnostic value of Dr. Drysdale's discovery of the ovarian cell, but also proves how readily a broad-ligament cyst may be mistaken for a degenerated ovary.

Dr. Drysdale having been called on by the President for some remarks on the paper, said: "I would have been greatly surprised if ovarian cells had been discovered in such a cyst as the one before us. The history of this case, as given in the paper just read, points clearly to a cyst of the broad ligament, and not to one of ovarian origin. Before hearing the conclusion reached by the writer of this paper, I was convinced of this fact, for it is a very rare circumstance for an ovarian cyst to rupture repeatedly, as this cyst did, without death ensuing. This was possible, however. But the nature of the cyst was more positively indicated by the character of the fluid removed by tapping, as the thin, clear fluid, resembling water and destitute of cells, is never found, in my experience, as a product of an ovarian cyst. This peculiar character of the fluid found in cysts of the broad ligament indicates at once its origin, and thus possesses a positive diagnostic value. It is a thin, colorless fluid, which resembles spring water in appearance when viewed by transmitted light, or when in small quantity. But viewed in bulk it is often slightly opalescent with a bluish tint, and, when examined by the microscope, is found nearly free from cells. Ovarian fluid, on the contrary, is generally thick and more or less opaque, and contains an abundance of cells. The color of the fluid removed in the first tappings was probably due to an admixture of blood from the interior of the cyst, caused by some inflammatory action or the rupture of small vessels.

It is gratifying to me to know that this case was not one of "an ovarian tumor containing no ovarian cells," but I would not have been surprised to have seen such a tumor presented, as I have myself examined fluids removed from ovarian cysts in which it was impossible to detect the ovarian cell. Such instances are, however, the exceptions and not the rule. In the cases I refer to, the absence of the cell was due to cysts having undergone inflammatory action, which had destroyed or modified the lining membrane of the cyst to such an extent that the cell peculiar to it was either no longer produced, or was so completely lost in the great abundance of the products of the inflammation that it could not be differentiated from the pyoid bodies mixed with it. I have examined such cysts completely filled with pus. I can recall an instance of it where the inflammation had been produced by an injection of iodine. But, in the course of time, when the inflammatory action has subsided, we may again find the ovarian cell if the surface from which it is derived has not been destroyed. This result of inflammation in altering the character of ovarian fluids is, of course, analogous to that which happens when any secreting surface is attacked by acute inflammation, as in the mouth, vagina, etc., where, in place of finding the cells peculiar to the secretion of these membranes, we see only pus-cells occupying the field of the microscope.

While on the subject of fluids removed from the abdomen, I would invite your attention to the specimen contained in this bottle. It was taken from a fibro-cystic tumor of the uterus about three hours ago. As the fluid ran from the canula it was of a light straw color, and was as thin as water, but almost immediately after its removal it became so solid that the bottle containing it could be held with its mouth down without spilling a drop. This fluid is characteristic of this peculiar tumor, as was first pointed out by Dr. Atlee and myself in his work on the diagnosis of ovarian tumors, where a full description of it can be found.

Dr. B. F. Baer.—I cannot agree that the history of this case "points clearly to a cyst of the broad ligament," but rather the reverse, especially if we leave out of consideration the character of the fluid, and even if we do not, the history is apt to mislead. The fact of its rapid development in the first place, its refilling after tapping, and especially the rapidity and frequency with which it refilled after tapping or bursting—fifteen or sixteen times in as many months—does not by any means "point clearly to a cyst of the broad ligament."

Again, the age of the patient, forty-six years, is not that at which cyst of the broad ligament is usually developed. It is most likely to occur before thirty, sometimes before twenty years of age, whereas ovarian cyst more commonly occurs after thirty.

Then, the fact that after tapping "a small and soft bunch was felt in the right broad ligament" is not like parovarian cyst; for the cyst usually collapses beyond recognition after it is emptied, although why it did not seem to do so in this case was revealed by the operation to be the colloid degeneration of the ovary referred to by the author of the paper. This colloid degeneration of the ovaries is an unusual concomitant of cyst of the broad ligament.

I think it a rather strong statement to say that the fluid taken from a cyst "indicates at once and positively its origin," although as corroborative evidence the character of the fluid is of great value. I do not believe there is a single ovariotomist, who, being put to the test of deciding as to the advisability of an operation in a given case of an abdominal tumor, would do so from an examination of the fluid alone. He would rather depend upon the physical signs and the history of the case, taking the character of the fluid as valuable corroborative evidence only.

I do not think it is safe to say that any single sign is *positively* diagnostic in itself; but, taken in connection with other signs, it gives additional strength, and this I believe to be the proper place for the so-called ovarian cell, as well as for the fluid of any cyst.

Whilst the specimen presented is not an ovarian cyst, I think it a unique case of parovarian cyst, with colloid degeneration of the ovaries, and I should like to ask the question: Does this colloid degeneration of both ovaries indicate maligancy?

DR. E. MONTGOMERY.—One peculiarity of the case before us is the frequent rupture and refilling of the cyst, in which it differs from one that came under my notice. A woman came to my office with a very large abdomen, and upon examination presented all the symptoms of ovarian cyst. Arrangements were made for its removal the following September or October, this being the latter part of June. A couple of months later, she fell from a chair and felt a giving way in the side followed by severe pain. The next few days large quantities of pale urine were passed and the tumor disappeared, disclosing the fact that she was five months pregnant. At the time of her confinement there had been no return of the tumor.

Some members present well remember a case, the subject of a consultation in the Philadelphia Hospital, in which there was a large tumor filling up the pelvis, pushing the bladder and uterus upward and producing retention of urine and feces. The tumor was elastic, evidently containing liquid, but the aspirator failed to remove a drop.

A post-mortem examination a few days later revealed an ovarian cyst filling up the pelvis and firmly adherent to its viscera, its contents were thick and viscid, resembling jelly.

Dr. Drysdale remarked: The colored matter Dr. Montgomery described as similar to the fluid exhibited by Dr. Drysdale, which he thought proved that such a fluid was not peculiar to fibro-cystic tumors of the uterus; but the fluid referred to by Dr. M. differs entirely from that obtained from fibro-cystic tumors. The ovarian gelatinous fluid described is not rare, and is found in that condition in the cyst so that it will not run through the canula when the cyst is tapped. The fibro-cystic fluid is as thin as water as it runs from the canula, but gelatinizes on exposure to air or as soon as it escapes—a property peculiar to it and which gives it its diagnostic value. If, in Dr. Goodell's case, the opposite ovary was in a similar state of colloid degeneration to the one before us, the disease would surely reappear, as true colloid disease was undoubtedly malignant. In connection with this subject he referred to a case of colloid cancer of the peritoneum which had been mistaken for an ovarian tumor. He had reported the case to the Pathological Society and it appears in their Transactions. The tumor had been diagnosticated as ovarian by more than one able surgeon, and he had been sent for in consultation to remove it. Suspecting from the condition of the pelvic organs that it was malignant, he had tapped and obtained several pints of a colloid matter which resembled in color, consistence, and general appearance, calf's-foot jelly. The patient continued to emaciate and after some months died. An autopsy revealed the most extensive colloid cancer of the peritoneum and some of the abdominal viscera. Shortly after that case was published, he was consulted by another surgeon in reference to a tumor which he considered ovarian and which he had concluded to remove. Before operation, however, he wished to have his diagnosis confirmed. Dr. D. examined the patient and found a condition of the pelvic organs similar to those of the first case and advised the doctor to tap before operating. But so firm was his friend in his belief that the tumor was ovarian that considerable difficulty was experienced in persuading him to resort to this diagnostic test. The tumor was tapped and a quantity of the same jelly-like fluid removed. Ovariotomy was abandoned, the patient returned home, and after a few months died. He referred to these cases in order to point out how closely colloid cancers of the peritoneum simulated cystic tumors of the ovary, and believed it impossible to distinguish between them during life except by tapping.

CASE OF HEMOPHILIA IN AN INFANT.

Dr. Packard related the case of a female child, born December 4th, 1880, who was supposed by the mother to have scratched her upper lip on the 11th with the finger-nail.

Dr. Packard was called and used all the known remedies, from mild astringents, salt, alum, styptic cotton, nitrate of silver, tincture of iron, to the actual cautery (a heated needle) with only temporary effect. Upon the first act of sucking or crying, the little wound was always opened again, and another crack, also bleeding, appeared on the lower lip.

Blood was swallowed, flowed from the nose, mouth, and anus, and on the 18th, after a struggle of seven days, the child died.

No case of hemorrhagic tendency was known to have occurred in the family of either parent.

Dr. Harris.—The age and sex of this patient of Dr. Packard render it exceedingly doubtful whether it was affected with true hemophilia; or simply, the hemorrhagic diathesis sometimes quite marked in female children, where the arthritic symptoms noticed in boy bleeders are entirely wanting. Infants have bled to death from the umbilical cord, and such cases, whether male or female, have sometimes been counted in the record of hemophilians; but I think erroneously, from the fact that, where the hemorrhage has been almost but not quite fatal, the children in after-years have generally been found not to be true hemophilians. There is a form of hemorrhagic diathesis that I have seen descend from father to son, and from mother to daughter, but in the cases noticed there were no arthritic complications and no deaths from bleeding. Sisters of true male hemophilians are sometimes to a certain degree bleeders, but they do not exhibit the ecchymotic spots so common upon the heads of hemophilians learning to walk; or the swollen knee-joints which are characteristic after the commencement of the second dentition. One of the Porro operations of Italy was performed, with success, upon a woman who possessed a hemorrhagic diathesis, and who lost a brother, a true hemophilian, by hemorrhage at the age of three years. According to Grandidier, only twelve infants in 185 bleeder families, and 576 individual bleeders, were affected with hemorrhage on the fall of the umbilical cord. It is rare for a bleeder to disclose his condition until the end of the first year, when he is liable to injury in learning to walk. Dr. Wickham Legge says, there is only one case on record (and that it was one of hemophilia is doubtful), in which death followed a vaccination. This was that of a little girl aged three months, among whose relatives no bleeders were known to exist. She died in a few days after vaccination, and *bled also from a place on the end of her nose, which she had scratched.* This case more nearly resembles that of Dr. Packard than any I have heard of; being also a young infant, and of the female sex. Probably not more than one true hemophilian is of the female sex to twelve or fifteen males. The true hemophilians I have seen and heard of in the United States were all males. If the infant seen by Dr. Packard was a hemophilian, the disease will be found to exist in the family, or it will appear decidedly in some male children, if any should be born to the same parentage.

DR. W. H. PARISH, Obstetrician to the Philadelphia Hospital, reported the following case of

JAUNDICE OF PREGNANCY.

J. K., æt. 19; single; domestic. About one year ago had a miscarriage from which she suffered apparently no evil results. She gave no history indicative of syphilis.

She became pregnant again and was admitted to the Philadelphia Hospital on November 29th, 1880.

While engaged in light work about the building, she contracted some bronchitis which compelled her to go to bed. The weather at this time was wet and cold. She became quite rapidly jaundiced on January 3d, 1881. The Resident Physician began treatment of the jaundice by administering Dover's powder and calomel —the latter in laxative doses. At this time she felt rather comfortable, though had slight headache, moderate constipation, and some general soreness.

On January 5th I presented her to the class in clinic. The jaundice was very decided, but she felt "very well;" pulse about normal, temperature normal, urine colored with bile, but not albuminous. Fetal heart-sounds distinct. I ordered bitartrate of potassium in moderately laxative and diuretic doses with injunctions that she be kept warm.

January 7th.—Labor began in the seventh month of her pregnancy. Delivery occurred by the breech; there was nothing unusual in the labor, and the uterus contracted well after delivery. The child gasped a few times and died soon after birth.

About six hours after labor the patient became restless and troublesome, vomiting began—the matter ejected seemed to contain bile. The Resident Physician directed bismuth subnit. in five-grain doses. He reports that the vomiting was quite obstinate, but ceased after about twelve hours. The headache became intense. He ordered opium gr. i. and quinine sulph. gr. v. per rectum.

January 8th.—Patient slept well and nothing seems wrong this A.M., except the jaundice. Temperature 99° F., pulse normal in frequency, rational, and but very slight headache. About noon, however, she became very restless, with muttering delirium, yet could be quieted if loudly spoken to. About 2 P.M. became greatly agitated, wildly delirious, could not be kept in bed except by force. Received pot. bromide gr. xxx. which quieted her for about an hour.

On awakening she became in a few minutes violently delirious. This condition was of but short duration when coma set in.

Temperature now $102\frac{3}{5}$°; pulse feeble, quick, 140; respiration 48; breathing stertorous. Urine now drawn with catheter, but no albumen found in it. Digitalis and whiskey were ordered by the Resident Physician. He also administered fluid extract of jaborandi. Profuse sweating and salivation occurred; to relieve the excessive flow of saliva, $\frac{1}{60}$ gr. atropia was administered hypodermically. The atropia checked the salivation without apparently diminishing the diaphoresis. For a few minutes there seemed some diminution of the coma.

Death occurred on the evening of the 8th, about thirty-six hours after delivery, and about five days after the appearance of marked jaundice.

The autopsy held by the Resident Physician was very unsatisfactory, because of the presence of the relatives who were objecting to the examination. The tissues generally were discolored. The kidneys and a portion of the liver were removed. The latter organ did not seem specially small, though its size and weight were not accurately determined. The uterus and its appendages seemed normal for the period of pregnancy and the time after delivery.

Dr. E. O. Shakespeare examined microscopically the tissue of the liver and of the kidney.

"Liver.—The piece of liver handed me for examination was somewhat soft and flabby, and the capsule of Glisson was loose. In spots the glandular acini were entirely invisible, while their outlines were very indefinite throughout the whole portion of the liver submitted. The color of the cut surface was, in the main, of a yellow ochre, but the color was not evenly distributed. In some areas it was more, in others less intense. In many spots the color deepened to a yellowish-brown. The intensely colored areas in general corresponded to the portions in which the outlines of the lobules were not to be seen.

After hardening the tissue, thin sections were made, stained in carmine, and mounted in balsam. Under the microscope, these presented the following appearances:—In the areas where the color was intense and the lobules invisible to the naked eye, the tissue appeared to consist of an almost homogeneous mass of yellowish granules. At rare intervals through this mass a few isolated liver-cells could be made out, but they were so completely fatty degenerated that a nucleus could but seldom be seen in them.

In those portions of the section corresponding to the less altered areas, the microscope showed the lobules more or less indefinitely. The gland cells of these acini were generally in a state of fatty degeneration which had not progressed to complete destruction. The nucleus of the cells, although quite obscure, could nevertheless be readily distinguished in most of the gland-cells. Many of these cells were loaded with pigment granules. There was no increase of connective tissue between the lobules. The blood-vessels were readily visible in those portions of the hepatic tissue which had not experienced entire degeneration. They were frequently seen to be filled with blood-corpuscles, among which the leucocytes almost or quite predominated. In these portions, the inter-lobular biliary vessels could also be recognized, and their lining epithelium was frequently not much altered.

In those areas where complete obliteration of the lobules had occurred, it was rare to observe either biliary or blood vessels.

The appearances above described seem to indicate the presence, before death, of a partial yellow atrophy, which attacked some portions of the liver more acutely and actively than others.

Kidneys.—Sections of the kidneys revealed the presence of a catarrhal nephritis, with scarcely any traces of an accompanying or preceding interstitial inflammation."

It would seem probable that a catarrhal jaundice occurred from exposure to cold and wet. Cholemia followed—the kidneys, the natural source of relief, were incapacitated by reason of an old lesion and because of advanced pregnancy. The excess of bile in the blood was not eliminated; miscarriage occurred because of the general blood degeneration; intense headache, delirium, coma, and death followed also because of the blood condition.

All of our text-books have too little to say about jaundice of pregnancy. It may be one of the indications of septicemia, but could not have been in this case, as there was no source of infection in the woman, and, moreover, although external infection may occur during pregnancy, the jaundice in this instance was too intense. The jaundice of septicemia is moderate in the intensity of the discoloration.

Every case of jaundice during pregnancy should be considered as a serious one, jeopardizing the child and mother. In pregnancy, what is at first simple catarrhal jaundice, may become in a few days malignant jaundice by reason of the blood change, and also possible liver degeneration.

The indication in treatment is to make the other emunctories supplement the crippled liver, while also endeavoring to restore the function of this organ.

Dr. J. B. Walker remarked that the case as presented by Dr. Parish contains many points of interest. So far as the microscopical examination has progressed, *acute yellow atrophy* is suggested.

This is strongly corroborated by the clinical history of the case. A pregnant woman at the seventh month becomes jaundiced, remains so for several days, miscarries, and, in a few hours thereafter, passes into a delirium which rapidly results in stupor and death. The autopsy reveals no condition of the uterus or its surroundings to account for this; but the liver presents evidence of extensive fatty degeneration.

Another interesting feature is the exemplification of the theory of Frerichs as to the cause of the nervous symptoms occurring during jaundice, and, especially, in acute yellow atrophy. These symptoms are not due to the presence in the blood of biliary matters, either acidulous or pigmentary; but to the retention of imperfectly oxidized nitrogenous waste, a result of the crippled hepatic function. In the case before us, prior to the labor, the marked jaundice was present for several days; no nervous symptoms presented, because, in the quiescent condition of the patient, the tissue waste was slight; and the liver, though rapidly becoming crippled, was still able to do its part in the preparation of this nitrogenous material for excretion. But the increased tissue waste incident to the labor exceeded the capacity of an impaired liver to properly oxidize; the blood was in consequence imperfectly depurated and by its effects on the nerve-centres caused the nervous symptoms and the death.

Stated Meeting, March 3d, 1881.

DR. EDWARD L. DUER, *President, in the Chair.*

DR. R. P. HARRIS read the history of

A CASE OF PORRO OPERATION.

The operator was Dr. Oppenheimer, the assistant of Scanzoni. It was performed before labor had commenced; a longitudinal incision was made from the symphysis to a point three fingers' breadth above the umbilicus. The uterine walls were very thin and could scarcely be handled without bursting; the uterus was, however, safely lifted out of the abdominal cavity and the latter protected by carbolized flannels; the uterus was then opened without previous ligation, the latter was omitted on account of the danger of bursting the attenuated uterine structure in tightening the ligature; Spencer Wells' clamp was used, and the actual cautery applied to the stump. The antiseptic method was fully carried out. The operation lasted forty-five minutes; vomiting and a slight rise of temperature occurred on the second day, but were relieved by a hypodermic injection of morphia. The clamp came off on the tenth day. The highest recorded temperature was 101° F.

TWIN CONCEPTION WITH BLIGHTED FETUS.

DR. E. RICHARDSON exhibited a specimen received from Dr. E.

H. Bell. It had been removed from the uterus of a German woman, 33 years of age. She was the mother of four children. She became pregnant last May, and was in a delicate condition throughout her pregnancy. The amniotic fluid commenced to come away on February 23d; on the 26th labor pains set in, and the next day a living male child, slightly below the average size, was delivered by means of the forceps. The weight of the child could not be ascertained in consequence of the superstitious fears of the parents. After removal of the placenta, the blighted fetus before you came away.

The specimen exhibited consisted of a shrivelled fetus of apparently three months. It measured three inches in length and was contained in a complete set of fetal membranes, including a placenta which was entirely separate and distinct from that belonging to the surviving fetus.

The specimen presented the appearance commonly observed in the cases of this nature, the membranes containing a little fluid and the tissues very friable; decomposition set in rapidly after exposure to the air. The size of the entire mass was about three inches in diameter.

It had evidently been a twin conception and one of the fetuses had died.

Stated Meeting, April 7th, 1881.

DR. EDWARD L. DUER, *President, in the Chair.*

DR. R. P. HARRIS read a paper on

THE PRACTICE OF OBSTETRICS AMONG THE CHINESE.[1]

POLYPOID TUMOR OF THE UTERUS.

DR. E. E. MONTGOMERY exhibited a specimen of uterine polypus and read the following history:

M., æt. 31, married five years without children, was admitted to the Philadelphia Hospital the latter part of last month, with the following history: She began to menstruate at twelve and continued regular until two years ago. At this time she noticed her abdomen was beginning to swell, was troubled with sick stomach so that she supposed she was pregnant; the menstrual periods did not cease, but, on the contrary, the flow was greatly increased, amounting to a hemorrhage. This condition continued, occurring only at the menstrual periods until some six months ago, when the flow became incessant and so continued until her admission. The patient is pale, sallow, very much emaciated, and confined to bed. Upon vaginal examination, a large globular mass was found occupying the natural position of the cervix; at the lower and posterior part of which was found an opening, the os so dilated as to admit the finger, the result of the use of a sponge-tent by my colleague, Dr. Linn, who had immediately preceded me in charge of the wards. The finger could readily enter the os, separate the thin walls of the uterus from a tumor occupying its cavity; by drawing the uterus down, the finger could be passed for two inches upon each side, the probe passed to a greater distance posteriorly. The introduction of the probe gave rise to quite a flow of blood.

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[1] See ORIGINAL COMMUNICATIONS in this number.

April 6th, 1881.—The patient was brought before the class and etherized for the purpose of removal of the growth. In operating I was assisted by Dr. Linn, in addition to the resident staff. The patient was placed upon her left side, a Sims' speculum introduced, the uterus drawn down and the wire écraseur applied. Although a strong wire was used, it broke before cutting through the mass. The application of a second wire was more successful, the pedicle cut through, and the tumor with some difficulty drawn through the os which had been previously incised a half inch upon each side.

A mass the size of the pedicle still protruded into the cavity of the uterus from the fundus.

The hemorrhage was slight and was controlled by the injection of hot water.

I have been informed by the Resident in charge, Dr. B. Van Nest, that the patient was in good condition this afternoon, and that there has been no discharge of blood.

She was placed on ext. ergot fl. ʒ i. three times a day, and steadily improved in appearance and strength; all discharge ceased; no febrile disturbance or unpleasant symptom followed the operation. A week later, the mass remaining was found extruded into the uterine cavity and attached only at the upper surface.

May 18th.—Her general condition was good; had had no bloody discharge since the operation, and expresses herself as feeling perfectly well. A mass, the size of a walnut, was still attached near the fundus; it was deemed desirable this should be removed. For this purpose she was etherized and brought before the class. The uterine canal yet remained sufficiently patulous to readily admit the index finger, though the internal os can now be distinctly felt. To obviate the tearing of the uterine tissues and the wounding of my own fingers by the tenaculum or volsella forceps, a strong silk cord was passed through the posterior lip.

The enucleation of the tumor was then accomplished by the finger without difficulty.

The ether, however, had a very serious effect. She suddenly stopped breathing and was pulseless at the wrist. She was resuscitated by artificial breathing, inhalation of ammonia, slapping with wet cloths, administration of stimulants, and the hypodermic use of digitalis. Since this second operation her condition has been very alarming. A perimetritis has developed, causing pain, rapid breathing, pulse as high as 150, temperature 105°, abdomen very tympanitic and tender, and stomach irritable. Under the use of large doses of quinine, opium, digitalis, and nux vomica, with free stimulation, her condition is greatly improved, so that to-day, May 24th, the temperature is down to 100°; pulse 96; pain and tenderness slight, and she retains the stimulants and food.

She now has apparently a good chance for recovery.

Stated Meeting, May 5th, 1881.

DR. EDWARD L. DUER, *President, in the Chair.*

OVARIOTOMY.

DR. EDWARD L. DUER exhibited an ovarian cyst which he had recently removed from a young lady only twenty years of age. The cyst was of the right ovary, unilocular, and with its contents at time of removal weighed within a fraction of fifty pounds. The patient's attention was first called to the tumor by a small painful enlargement in the left iliac fossa as early as the fall of '76. The most of the growth, however, had been attained in the past eight months. At time of removal her greatest circumference was forty-six inches. The operation was uncomplicated except by so remarkable and close attachment to the opposite ovary as for a time to lead to doubt as to which side it sprang from. The left ovary was enlarged but slightly, and doubtless was the painful tumor before referred to.

The main cyst-walls were quite thick and firm, and numerous daughter cysts were found on its inner surface. Both ovaries were removed, and both pedicles tied and dropped into the cavity, the operation being performed with every antiseptic precaution, unless exception be taken to the simplicity of the external dressing, which, as practised by Goodell, consisted in simply placing a large piece of salicylated cotton over the silver-stitched wound and binding the whole down with long strips of India-rubber plaster, and over all a flannel bandage.

The convalescence was entirely uneventful.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Wednesday, March 2d, 1881.

DR. MATTHEWS DUNCAN, *President, in the Chair.*

INTERSTITIAL FIBROID CAUSING RETROFLEXION.

DR. GODSON showed for Dr. I. Dewar a specimen of interstitial fibroid. The patient was aged 43, a widow, sterile. Three years ago Dr. Dewar attended her for retroflexion. She wore a Hodge's pessary with advantage for some time, then it began to give pain and had to be removed. About a year after, she had an acute attack of pelvic peritonitis which left the uterus fixed. She died rather suddenly, from a second attack of peritonitis. The specimen showed a small fibroid in the anterior wall of the body of the uterus. The fundus was retroflexed, pointing downwards very markedly.

THE PRESIDENT then delivered his inaugural address, on

SO-CALLED "MISSED LABOR," WITH A CASE IN ILLUSTRATION BY DR. BARNES.

The author started by saying that the term "missed labor" proposed by Oldham was not justified by the facts of Oldham's case, which proved, on autopsy, to have been one of extrauterine gestation. Discussing other cases of presumed missed labor, accepting the arguments of Stoltz and Müller, the author affirmed that no authentic example of missed labor, this term being taken to mean the prolonged retention in utero of a fetus living at term, is yet known. He cited examples of the retention of the ovum which had perished in utero at a pre-viable age for some time, and notably until the arrival of the natural term of gestation. He related a case which came under his own care: A lady, æt. 39, had born three still-born children, the last of them five years ago, before consulting Dr. Veitch, of Penang, in December, 1872. Pregnancy dated from early in November preceding. The usual signs of pregnancy were manifested. She verified quickening; up to the seventh month she felt movements of the child. About the eighth month, after a slight accident, a flow of blood came.

Three weeks later, another bleeding occurred, but no labor pains. Eleven months after the presumed date of conception, came to England. There was an impression that she might be suffering from fibroids of the uterus. She came under the author's care in December, 1873. Under chloroform, the cervix uteri having been dilated by laminaria tents, he felt what he took to be the interior surface of the uterus; the sound passed six inches. In January, 1874, some colored discharges went on. Pieces of bone, which turned out to be bits of the spinal column, passed by vagina. After dilatation by tents, more bones were removed by fingers and forceps. In February, this maneuvre was repeated, and by craniotomy-forceps the remaining parts of a fetus, which appeared to have reached the eighth or ninth month of gestation, were extracted. Her health then improved, the discharges became less offensive, and the uterus gradually shrank, as in ordinary involution, but more slowly, until it reached the common conditions of the non-pregnant state, and the patient perfectly recovered. The author submitted that this was a clear instance of the retention of a fetus dying in utero at a viable stage for some months after the normal term of gestation had been reached, and that in this sense the term missed labor might apply. He cited the cases of Dr. McClintock and Dr. Hall Davis as corroborative.

Mr. Spencer Wells, who had seen the patient, asked if the case might not be explained on the assumption that the pregnancy was what had been called by some interstitial or mural, in which the ovum is arrested where the Fallopian tube passes through the uterine wall. He remembered that some attention had been given to this view at the patient's bedside, and thought that the subsequent history was quite consistent with this view. It was strengthened by a case he saw last year. A lady who believed she was in the fifth month of pregnancy was reduced to a state of extreme danger by constant pain and vomiting. Eminent men had said she could not be pregnant, because the cervical canal admitted the finger, and the sound could be moved freely to a depth of nearly five inches. Mural pregnancy was diagnosed, ergotine was injected into the substance of the cervix uteri, severe pains followed, and the expulsion of the fetus with perfect recovery.

Dr. Roger thought that a reasonable explanation of these cases of so-called missed labor might be given from a point of view hitherto unnoted. He believed that most of them were originally uterine gestations, which, during their course, became partially or wholly extrauterine in consequence of a degree of rupture of the uterus from external injury, or spontaneous giving way through degeneration of the uterine structure. The fetus did not escape entirely, but to such a degree that ultimately a cyst was formed outside the uterus, the fetus being partly within and partly without. The first symptoms were those of pain, coincident with some accident, and the pains of *labor* were always equivocal. The fetus, at this time, died, the pains subsided; then followed the history common to all, fetid discharge, putrilage, and bones. When an autopsy had been made, an aperture had been found connecting the cavities of the uterus and the cyst. The rigidity of the cervix in these cases was of interest, as illustrating uterine polarity. The fundus being injured, fundal polarity was arrested, while cervical polarity remained in full force.

Dr. Crevois, in corroboration of Mr. Spencer Wells' suggestion, mentioned a case of extrauterine pregnancy in which very unexpectedly—about the fifth month—delivery occurred per vias naturales. The practitioner in attendance, on introducing his hand, found a distinct cavity toward the left angle of the fundus, in which evidently the fetus had lodged. He also referred to cases in which, when delivery was due, a few ineffective pains occurred, but delivery did not occur till three or four weeks later. He mentioned a typical case in which this occurred in successive pregnancies, with the result that instrumental aid was necessary, and the child was each time born dead. At her fifth confinement, the effort of nature was supplemented at the ninth month, and a living, healthy child born. In the sixth pregnancy, there was again protracted gestation, and a stillborn child.

Wednesday, April 6th, 1881.

Dr. Matthews Duncan, *President, in the Chair.*

DERMOID CYST.

Mr. Knowsley Thornton showed a dermoid cyst of the left ovary which had been entirely twisted off from its pedicle, and had become attached to the right side of the omentum. The patient first came under his care seven years ago with a doubtful abdominal tumor. She had since had four children, and during the last pregnancy the tumor gave her great pain. On April 2d, Mr. Thornton removed the tumor, together with a cystic tube, the remains of the twisted pedicle on the left side, and a cystic right ovary.

Mr. Doran showed microscopic sections from the cyst. The wall consisted mainly of patches of true skin, with sebaceous glands and hair follicles. There were tooth-like bodies, which proved to consist of cartilage. Small secondary cysts projected from the inner wall. In certain long narrow cavities in the subcutaneous tissue was seen well-formed mucous membrane, having a perfect cylindrical epithelium, with numerous involutions.

FETAL MONSTROSITY.

Mr. Doran showed also a female fetus which displayed extreme arrest of development of the genito-urinary tract. It was born at the seventh month, and breathed for a quarter of an hour. There was ectopia of abdominal viscera, club-foot, and spina bifida. The bladder consisted of two lobes, and between them uperiorly the intestine opened from above. The ureters were impervious. On the right side was a Fallopian tube, and tubular thick-walled half uterus; ovary atrophied ; on the left, an ovary and Fallopian tube, the uterus being an impervious cord.

CALCULI IMBEDDED IN FEMALE URETHRA.

THE PRESIDENT showed several small oxalic acid calculi which had been removed from the wall of the female urethra in which they had become imbedded.

ADJOURNED DEBATE ON DR. BARNES' PAPER ON "MISSED LABOR."

DR. EDIS said that several instances had been recorded by different authors, as Simpson, Meigs, and Atlee, in which gestation had been prolonged for one, two, or three months beyond the normal time. But in many such cases there was strong presumptive evidence that they were really instances of extrauterine gestation, the supposed cervix being really a fistulous opening. Dr. Müller, after investigating forty-five cases of alleged missed labor, concluded that "there does not exist an authentic observation of retention of the fetus within the womb beyond the term of ordinary pregnancy. In this conclusion he fully agreed, unless Dr. Barnes' case were an exception, but even this might have been partly interstitial, and not an ordinary extrauterine pregnancy. In some cases in which the labor was obstructed by contractions of the brim or other causes, the uterus ruptured, the fetus passed through the rent and became encysted, and was afterwards disintegrated and expelled.

DR. GALABIN had met with one case of supposed missed labor, which tended to confirm the view that many cases so described were really instances of extrauterine fetation. There was an effort at labor at full term, and he saw the patient some two months later. There was then a sanguineous somewhat offensive discharge from the vagina, and the patient's condition had become grave. A catheter passed through the cervix into a cavity resembling the uterus, and gave exit to a fluid like that which had escaped from the vagina. After dilatation of the cervix by a tent, the breech of the fetus could be felt presenting through a round opening, which seemed to be the internal os. This turned out to be an aperture in the uterine wall, at the point at which it was sharply retroflexed, and the gestation proved to be abdominal, lying in front of the fundus. If no autopsy had been made, all who saw the case would have continued to suppose the fetus intrauterine.

Dr. Heywood Smith remarked on Dr. Godson's observations that menstruation had not taken place *in consequence* of the presence of the arrested fetus; that it was an interesting question *why* such should be the case, as the fetus ceasing to grow, and so pregnancy proper ceasing, why did menstruation not occur? For it was probably owing to its non-appearance that the ovum was not thrown off.

The President said that, for his own part, he believed in the occurrence of protracted gestation and missed labor. The probability of their occurrence was much supported by the facts that they occurred in the lower animals, and that missed abortion or missed miscarriage occurred certainly in women. He did not think the occurrence of labor premonitions a necessary part of missed labor. In a case which he had seen and published in his clinical lectures, there were no phenomena of labor till the evacuation of the uterus was undertaken artificially. In the last case of protracted gestation which he had seen and published, there was a beginning of labor at full term, and labor came on spontaneously some weeks later. He thought the term lithopedion, at present often used as synonymous with mummified fetus, should be better defined. The fetus never became calcified like a uterine fibroid, but calcification affected only the membranes, and sometimes the adjacent parts of the fetus.

Dr. Barnes, in reply, said, in reference to Mr. Spencer Wells' suggestion that the pregnancy might have been intramural, that there was no evidence in favor of it, and intramural gestation generally ended by a fatal cataclysm at the second or third month. Dr. Rogers' suggestion was ingenious, and might apply to some cases, but he thought not to the one before the Society. The rhythmial action of the uterus could not be expected to be detected when the uterine contractility was impaired after the death of the fetus. He would make a point of studying Dr. Duncan's cases. Meantime he thought that protracted gestation for an indefinite time required better proof than he possessed. He thought the term "missed abortion" a singularly unhappy one, and that the term "concealed" or "incomplete abortion" was much to be preferred. He could not agree with Dr. Duncan that the terms lithopedion and mummified fetus were commonly used as synonymous. A stone child should at least be stony, and the distinction was the more important, since Cruveilhier had insisted, rightly, as he believed, that a lithopedion was never found in the uterus.

"A CASE OF DELIVERY THROUGH AN IMPERFORATE VAGINA."

By Dr. Heywood Smith.—The patient was 31 years old, married ten years, pregnant for the first time. The vagina was only one and one-half inches long, and was completely closed by a roof of the normal thickness of vaginal tissue. It was congenital, and there was no cicatricial tissue. Her mother, a trained nurse, was aware of the malformation. One and a half years previously, she had consulted Dr. Edis for leucorrhea, and he failed to detect the slightest orifice in the vaginal roof, though the patient menstruated, but with pain. The author was called to see the patient at the British Lying-in Hospital when she had been in labor thirty hours. On admission, the urethra was so patent as to admit nearly two fingers, and, from the husband's account, coitus probably took place per urethram. The vaginal roof was lax, as the head was arrested at the brim. The os was completely dilated, and the bones of the head had begun to overlap. A careful examination failed to discover the slightest depression, or any indication as to any aperture, however small. The patient was therefore placed under chloroform, the vaginal roof was picked up with forceps, and a cut made at once with scissors directly through it, when, the finger being passed through the aperture thus made, the head was felt ; the opening was then enlarged by tearing with the fingers, until a passage was formed large enough for delivery, which was speedily effected by means of the long forceps, and a living female child extracted. The patient made a good recovery, and examination last December showed a normal vagina, with but a slight constriction, not at all hard, formed by the remains of the previous vaginal roof. The author quoted other recorded cases, amongst them one by Dr. Isaac E. Taylor, of New York, almost the counterpart of his own, except that the advancing head pressed down upon the vaginal roof until a slight depression revealed itself, which was scratched through, and the opening dilated. There was a question of interest as to the mode of impregnation in the present case, whether it was through some undiscovered aperture through which menstruation also took place, or whether there existed some slight fistula between the bladder and the upper chamber of the vagina.

A CASE OF IMPERFORATE VAGINA.

By Dr. Percy Boulton.—The patient was aged 18, married, catamenia were always very painful, and were followed by " green waters " for several days. The vagina was found to be a cul-de-sac about one and a half inches deep, and no opening whatever could be felt. An examination was made under chloroform, and a dilating speculum introduced. On either side of the vaginal terminus a small opening was then found through which a probe could be passed. The openings were dilated with tents, and there was then found, first, a normal uterus ; second, a tripartite vagina, the upper portion being duplex, separated by a septum which formed a triangle with its base downward. A small communication between the two was found close up to the vaginal neck. The central block was divided by passing whip-cord round by a sound having an eye at the end, and attaching it to an écraseur. A vulcanite vaginal plug was worn for three weeks, and the patient then went home well.

Dr. Barnes said that Oldham had long ago pointed out that in some cases of absence of vagina the urethra was largely patent, and this without having served for intercourse. It was not necessary to postulate a fistulous communication through the bladder. There was, do doubt, a small aperture, which had become closed after impregnation.

Dr. Routh noted that the patient was treated during her pregnancy for leucorrhea. He thought there might have been an opening allowing impregnation prior to the vaginitis, which was afterwards closed by this inflammation.

Dr. Boulton, in reply, said that he thought that in most, if not in all cases of apparently imperforate vagina in which menstruation or pregnancy occurs, a pin-hole opening exists.

Wednesday, May 4th, 1881.

Dr. Matthews Duncan, *President, in the Chair.*

Dr. Galabin showed for Dr. John Bassett two specimens: 1, the placenta from a case of triplets. On the fetal side were attached three umbilical cords, and the remains of three sets of membranes, without any appearance of separation in the placenta. 2. A fetus with the placenta adhering to the cerebral membranes. The vault of the skull was absent, and no brain substance was developed. The placenta, which was previous, adhered to the cerebral membranes. These membranes contained some fluid. The child was delivered by version, and breathed for about an hour.

Dr. Meadows showed pessaries made of the new material, xylenite, a compound of paper and nitro-glycerine. It was more elastic than vulcanite, and could be more completely softened for moulding by boiling water.

Dr. Godson showed a new apparatus for applying heat or cold to the surface of the body. It was known by the name of Leiter's temperature regulator, and consisted of a coil of pliable metallic tubing, which could be adapted to different parts. A continuous stream of hot or cold water could be circulated through it. He thought it might be valuable in post-partum hemorrhage.

Dr. Cleveland showed a cylindrical, fleshy substance, about three by three-fourths inches. It had a remarkable resemblance to a uterus, having a mouth with lips at one end, and a central canal. It was expelled with pains and slight hemorrhage three days after delivery of a seven months' child. The lady, who had borne previously eight children, said that, in her last two labors, a similar substance, but rather larger, had been expelled on the third day.

A CASE OF PHLEGMASIA DOLENS WITH LYMPHATIC VARIX.

By Dr. Matthews Duncan.—The author was disposed to support the view of Tilbury Fox and others, that phlegmasia dolens is due to venous and lymphatic inflammation and obstruction, and that, of these two, the lymphatic disease is the more important, especially as being probably present in every case, while the venous disease is occasionally absent. The case of white leg occurred in the downward progress of a characteristic case of cancer of the womb. During its presence there appeared lymphangiectasis of a part of the skin of the thigh, and this disappeared as the phlegmasia diminished. The part visibly affected was at the upper and outer part of the anterior surface of the left thigh, and constituted an oval or triangular area, broader above than below, and of such extent as might be nearly covered by the hand. There was no pain nor tenderness. The projecting vessels covered by epidermis, having a yellowish-white tint and pearly lustre, were seen and felt, and the prick of the small point of a knife allowed a large drop of limpid lymph to immediately exude. A similar affection of lymphatics occurred during a slight attack of phlegmasia in the right limb, which began as the disease was slowly disappearing from the left. The lymphangiectasis occurred in an area of skin mechanically weakened by being the seat of closely-set, spindle-shaped, ribbon-like skin-cracks. These cracks were obscured by the lymphatic distention, and did not subsequently become again visible as skin-cracks, except in small parts. The lymphangiectasis was probably the result of general lymphatic tension in the whole limb, the special varicose lymphatics becoming so in consequence of being imperfectly supported by the weakened cracked skin. Similar phenomena were observed in the abdominal skin-cracks of pregnancy under circumstances not regarded as morbid.

Dr. Playfair said that many clinical facts proved that thrombosis of the veins was not of itself sufficient to account for the phenomena of the disease. Thus, there were cases of thrombosis of the veins of the lower extremities, occurring in gouty subjects, in connection with which nothing like phlegmasia dolens was observed. Dr. Duncan's cases showed the probably intimate connection between a certain amount of septic absorption and phlegmasia, which was not uncommon in connection with cancer of the uterus. He did not think that there was ground for assuming that lymphatic obstruction had more to do with phlegmasia than venous obstruction. He had never seen any lymphangiectasis in puerperal cases, and, in some instances, thrombosis of pulmonary arteries preceded the phlegmasia.

Dr. Graily Hewitt thought that there was no doubt that, in typical cases of this disease, both lymphatics and veins were affected. It was known that the venous obstruction originated in coagulation in the uterine sinuses extending to the iliac trunk, and it was probable that the lymphatic thrombosis occurred in a similar way.

The President would not attempt to estimate precisely the comparative influence in phlegmasia of venous and of lymphatic obstruction. He would only say that, while sometimes venous obstruction was certainly absent, he could not say the same of lymphatic obstruction.

A CASE OF EXTRAUTERINE ASSOCIATED WITH INTRAUTERINE FETATION, IN WHICH ABDOMINAL SECTION WAS PERFORMED.

By Dr. Galabin.—The patient was 36 years old, was married in the spring of 1878; in the summer of that year had an abortion, and in April, 1879, was delivered by forceps of a full-term child. She expected her second confinement in September, 1880, and engaged Mr. Thomas Duke, of Rugby, to attend her. During the fourth and fifth months of pregnancy she had considerable pain and tenderness in the right side of the abdomen. Two tumors were discovered; that on the left side gave the usual evidences of fetal life, and was clearly the pregnant uterus. Over the tumor on the right side nothing could be heard by auscultation, and Mr. Duke, as well as several other medical men who examined the patient, concluded that the case was probably one of an ovarian tumor complicating pregnancy. On June 16th, symptoms of rupture suddenly occurred, followed by those of peritonitis, and the outline of the right-hand tumor was found to have disappeared. The patient's state having become very critical, the author was sent for, and reached Rugby on the evening of the 19th. He was inclined, from the history, to agree with the diagnosis of ruptured ovarian cyst, but the possibility of combined extra- and intra-uterine fetation existing was suggested. He suggested an exploratory operation as the only chance for life, and performed this on the morning of the 20th. A large quantity of blood and clot was found in the peritoneal cavity, and an extra-uterine fetus contained only in its thin membranes. The placenta, attached to the back of the pregnant uterus and posterior surface of right broad ligament, was left in situ, and a drainage-tube placed in the wound, entering the general peritoneal cavity. The operation was performed under carbolic spray. The patient appeared to be doing well for the first two days, and the temperature never rose above 99.8°. Labor, however, came on on the morning of the 22d, and a child, which presented by the breech, was delivered still-born. Though there was very little hemorrhage by the vagina, a great deal occurred through the drainage-tube. On the 23d, the temperature was normal, but hemorrhage still went on through the drainage-tube, and she died, apparently from loss of blood, on the 24th. The author attributed the secondary hemorrhage to the shrinking of the uterus in the expulsion of the fetus, and consequent further detachment of the extrauterine placenta from its posterior wall. Both fetuses appeared to be of about six and a half months' development, but the extrauterine fetus weighed only one and a half, the intrauterine two and three-quarter pounds. A review was appended of several recorded cases, in all of which the extrauterine pregnancy appeared to have been of the abdominal form, while in none of them was a complete diagnosis made while both fetuses remained within the abdomen.

Dr. Routh congratulated the author on his skill and power of diagnosis. It appeared that death was due to the further detachment of the placenta in labor, and he suggested that it would have been expedient to reopen the abdomen and arrest hemorrhage by the actual cautery. He had seen adhesions in ovariotomy, even adhesions to the liver successfully treated by the actual cautery.

The President regarded uncontrollable hemorrhage as the great difficulty in surgical interference with extrauterine pregnancy, and this even many months after the death of the fetus. He did not look with much hope on the actual cautery as a means of arresting this or any kind of hemorrhage, as he had used it and seen it used in vain.

Dr. Galabin said that, on account of the distance of the patient, he had not had the opportunity of deciding on the expediency of reopening the abdomen. He thought that a styptic, such as perchloride of iron, would be more effectual than the actual cautery in arresting hemorrhage in such a case.

MIDWIFERY IN PRIVATE PRACTICE DURING FORTY-THREE YEARS.

By Dr. George Rigden.—5,682 mothers were delivered of 5,757 children, viz.: 2,947 males, and 2,804 females; 65 were twin cases, and there were two cases of triplets; 5,422 children presented by some part of the head, including the face, 156 presented by the breech, 89 by inferior, 84 by superior extremities. There were 45 placental presentations included in the above. 255 children were still-born, 165 being premature; 105 had been dead some time. 759 were delivered by forceps; in two cases craniotomy had to be performed. Previous to 1860, forceps were used only once in 222 cases, while in the last twenty years they were used about once in 15 cases. The proportion of still-births was but very slightly diminished during the latter period, and the author attributed this slight advantage rather to greater experience than to the more frequent use of forceps. There were 13 maternal deaths, viz.: 2 from puerperal convulsions, 5 from peritonitis, 2 from heart disease, 1 from fright, 1 from cancer of the tongue in an advanced stage, 1 from bronchitis, and 1 from scarlet fever.

Dr. Edis thought great credit was due to Dr. Rigden for his exceedingly low maternal mortality. It was curious that the proportion of still-births did not seem to vary with the change from ergot to forceps. He believed that the timely use of forceps diminished materially both infant and maternal mortality, especially in large cities.

REVIEWS.

Die Lageveränderungen der Gebärmutter, von Dr. Heinrich Fritsch, Professor in Halle.

The Displacements of the Uterus, by Heinrich Fritsch, M.D., Professor of Obstetrics and Gynecology in Halle, Germany. Part III. of Billroth's Handbook on Diseases of Women. F. Enke, Stuttgart, 1881, pp. 260, with one hundred illustrations.

A work devoted solely to the discussion of the displacements of the uterus is, in my opinion, a desideratum. Not only is the etiology and pathology of these affections vague and unsettled, but also their treatment and the prognosis as regards their permanent cure are matters of dispute among the authorities in the specialty; the general practitioner, as shown by the faulty diagnoses and crude therapeutical practices daily encountered, still more needs a work which will lead him nearer the correct path than is possible for the compendious text-books on general gynecology. To write such a book which, while basing the various dislocations of the uterus on anatomically and scientifically secure foundations, must be eminently practical in its therapeutical directions, requires not only a thorough medical education and theoretical knowledge of the subject, but also a practical experience extending over many hundred cases and a mechanical ingenuity equal to the task of suiting every variety of dislocation with an appropriate supporter.

As regards the anatomico-pathological portion of the present work, the originality of thought and clearness of expression marking the author's numerous previous publications lead us to expect a careful and scientific handling of the subject, and in this we are not mistaken. Whether he has equally well grasped the practical and therapeutical parts, it will be our main object to ascertain in this review. Certainly, his opportunities for the treatment of female diseases have been ample during the fifteen years since which he has devoted himself to this specialty.

His remarks in Chapter I. on the Physiological Position of the Uterus have interested me greatly. Since reading an admirable paper by the late Prof. E. Martin, of Berlin, on the "Physiological Position and Shape of the Uterus in the Living Woman," published posthumously by his son, A. Martin, in the *Zeitschrift für Geb. und Frauenkr.*, I., 1876, and comprising fifty-one pages, a paper which I believe to be far less known and appreciated than it deserves, the normal position of the uterus with its natural variations has largely attracted my attention, and I have found Prof. Martin's views in the main correct. He states that, in the healthy adult female, in the non-pregnant condition, the examining finger finds the posterior lip of the cervix uteri between 1.5 and 3 cm. above the point of the coccyx, slightly behind an imaginary transverse line bisecting the pelvic canal, and that the body of the uterus is not touchable either through the anterior or the posterior vaginal pouch, unless the fundus is voluntarily displaced, backward or forward, by a hand on the hypogastrium. In the dorsal decubitus, the sound glides through the cervical canal to the fundus almost by the weight alone of its handle. Martin expressly says that the recumbent or erect position makes no special difference in the position of the uterus unless unusual mobility of the organ exists. Further: "If, in an adult woman, who is neither pregnant nor has recently been confined, the finger in the vagina feels the body of the uterus in front of or behind the cervix, without pressure being exerted from without, the position is pathological."

Coinciding with this view, I must pronounce Fritsch's statement, that "in the region of the internal os the uterus is bent almost at a right angle," decidedly incorrect (Fig. 1, Physiol. pos. of uterus with empty bladder and rectum). To my mind, Fig. 2 (pos. of ut. with full bladder and rectum) represents very nearly the usual normal position. If the rectangularly flexed and anteverted uterus shown in Fig. 1 expresses the normal position with empty bladder, then the normal position occurs very rarely in the women whom I have the opportunity to examine, or else the uterus does not resume this, its normal position (according to Fritsch, Van de Warker, and Schultze, too) when the bladder is emptied. I have frequently made the experiment of first examining the woman with a full, and then with an empty bladder, and never have I seen such a forward displacement unless the case really was one of ante-displacement and displayed symptoms of that affection. With full bladder, the body of the uterus was simply not touchable at all per vaginam; with empty bladder, it could be reached slightly, especially in the erect position. This question is one of importance, since to omit treating an anterior displacement because it is supposed to be the physiological position (as Fritsch and other authors mentioned teach) would be omitting the very means to relieve the patient. It is strange that such a diversity of opinions still exists as to the normal position of the uterus. We can only arrive at the true result, it seems to me, by comparing the careful examinations of numerous *healthy*, living women with full and empty bladder and rectum, in the erect and recumbent posture, and then drawing a general average. Investigations of dead subjects, frozen or not, never give the peculiar relations existing during the tonicity and elasticity of life. The reason for this diversity of opinion is probably due to the fact that healthy women are rarely examined, and that, therefore, all the results and diagnoses are taken from pathological conditions. I also wish to take exception to the statement that the healthy, non-pregnant uterus is as flabby as the pregnant organ, and that the former can be bent at will. Such flabby uteri, in my practice, form one of the most intractable causes of sterility, amenable only to intrauterine stems.

As evidences of the normal mobility of the uterus, the author speaks of the possibility of pushing it up 4–5 cm., which is done by each complete intromission of the penis, and of drawing the cervix down almost to the vulva without tearing or injuring its attachments. In the erect posture, the cervix stands lower, and the vagina is shorter than in the recumbent position.

The name "utero-sacral ligaments" is condemned by the author, because the muscular fibres, which are found all through the pelvic peritoneum, spread out into a broad layer as they approach the sacrum in their course from the uterus, and are nowhere attached to the sacrum. The posterior lateral duplicatures of the peritoneum should therefore be called "ligamenta suspensoria uteri postica," and the organ from which the uterus is suspended through them (and the other uterine supports) is the peritoneum. As the muscular stroma of the uterus, the organ itself indeed is enveloped by peritoneum, as a finger by a glove (excepting only its intravaginal portion), and, as this envelope is firmly attached to the uterus, it does not seem so unplausible a view to consider the uterus suspended from the peritoneum, an organ clothing the whole abdominal cavity and its viscera, and less likely to yield in a downward direction than any single set of attachments. The antero-postero-lateral movements of the uterus are regulated by the utero-vesical, utero-rectal, round and broad ligaments. The suspensory apparatus of the uterus is thus a much more uniformly extensive and evenly distributed arrangement than has ordinarily been supposed.

The author's comparison of the bladder with a water-cushion situated between the symphysis and uterus, and subject to variable degrees of fulness, seems to me very apt.

The relations between uterus and bladder and uterus and rectum, in different degrees of fulness of these organs, and between uterus and vagina and the adjacent cellular tissue, are very clearly and concisely discussed, and the changes of position caused by the enlargement of the uterus during menstruation, pregnancy, and the puerperal state are fully pointed out. As a correct knowledge of the normal relations is indispensable to an intelligent understanding of pathological changes, the importance of thoroughly elucidating the former is apparent, and this chapter, therefore, seems to me worthy of careful study.

He closes by saying that, as no fixed normal position of the uterus exists, so should the pathological displacements be considered merely as exaggerations of the temporary physiological dislocations of the organ.

Proceeding from his (as I think, erroneous) assumption that in the physiological position of the uterus the body is flexed at a right angle to the cervix, Fritsch says that, "when the angle of flexion is sharper, or neither the filling of the bladder nor the menstrual congestion are able to straighten the uterus, a pathological condition is present." The presence or absence of dysmenorrhea is another matter. I believe that an anteflexion, for instance, which can be overcome by the filling of the bladder, but returns as soon as that organ is emptied, and thus forms a cause for sterility, is, in proportion, quite as pathological as though the flexion were immovable. Such flabby uteri which are easily straightened, but when the elevating finger, sound, or stem is removed, at once return to their flexed state, are the very ones which give us most trouble to cure. In this particular the author agrees with me (p. 16), and thus really contradicts himself.

In discussing the etiology of flexions, the author very properly says that the first cause of every flexion is to be sought in a congenital predisposition of the uterine tissue. A healthy, firm uterus cannot be flexed at a right angle; its walls are too thick. A certain flaccidity of the tissues, an unusual thinness of the walls must, therefore, be congenital to permit the subsequent development of a flexion. Direct causes are such as tend to press the fundus down and push the cervix up, and thus in time produce atrophy of the uterine wall at the angle.

Length of the cervix, disproportionate to the body, may also, through limitation of space, result in a flexion (ante) of the cervix. A variety of anteflexion which I frequently meet with in women who have been long married without having children, or who have miscarried repeatedly, and who suffer from dysuria, sacralgia, ovaralgia, and aching pelvic pains as the result of subacute pelvic cellulitis, is that in which the cervix is fastened behind by a shortening of the posterior uterine ligaments, and the body is thereby thrown forward. This variety was recently pointed out by B. S. Schultze, and Fritsch pronounces the cases with "pain on drawing forward the cervix, sharp anteflexion, dysmenorrhea, and sterility" very common. He has found this condition in virgins, which has not been my experience, so far as I can recollect. The irritation and frequently repeated congestion of fruitless coition, with the physical impulse of the act upon the cervix, seem to me to be necessary to the production of the parametritic fixation of the cervix. One point in favor of his view is, as he very properly mentions, the possibility that the retraction of the cervix by the posterior ligaments is due to a congenital shortening of those folds.

The undoubted frequency of this latent, subacute, often entirely unsuspected peri- and parametritis is explained by Fritsch on the latent gonorrhea basis of Noeggerath. I do not agree with him therein, for I think the cases far too common, and the menstruosexual congestions quite sufficient explanation for the majority of cases. Indeed, he admits the derangements of circulation during menstruation as a factor in virgins.

On page 24 is represented a variety of displacement not uncommonly met with in virgins and sterile married women, viz., anteflexion with retroversion. To understand this displacement we have merely to tilt back an anteflexed uterus until the external os points in the direction of the vaginal outlet; the body remains anteflexed, the fundus pointing toward the anterior abdominal wall, but the posterior surface of the uterus as far as the point of flexion rests in the hollow of the sacrum. Fritsch seems to attribute all these cases to a posterior peritonitis, followed by cellulitis, which fastens the uterus up to the angle of flexion to the rectum, while the fundus is drawn forward by the round ligaments. That this is frequently the case, especially when the uterus is nearly or entirely immovable, I do not doubt. But I am positive that this displacement in young girls and young sterile married women, which I have seen, was not due to retro-uterine adhesions. I have always explained the condition as one due to congenital disposition to flexion, together with unusually short intravaginal portion of the cervix, or shallow vaginal pouch, and perhaps congenital shortness of the utero-rectal ligaments. Vaginal pessaries have usually failed me in these cases, chiefly because of this shortness of the vaginal pouch and the inability to secure a purchase with the pessary on the body of the uterus. I have succeeded best, in those cases which could bear the treatment, by straightening the uterus with a hard-rubber stem, and then anteverting it, when the posterior vaginal pouch must be so much elongated as to give a resting place for a lever pessary. One such case (a sterile married woman) wore both the stem and lever pessary uninterruptedly for five months, doing all her marital and household duties during that time. Surely there was no parametritic fixation in this case!

In discussing the symptoms produced by anteflexion, the author discards the mechanical obstruction theory of dysmenorrhea, except for very acute flexions, and even then appears sceptical. Excepting sterility, the symptoms met with in anteflexions are due to other pathological conditions besides the flexion (congestion, endometritis, parametritis, ovaritis, stenosis). As regards the influence of anteflexion on the production of sterility, Fritsch very truly says, the "causa peccans is but very seldom to be sought in the cavity of the uterus," that "affections of the parametrium, adhesions and torsion of the tubes, difficult ovulation in anemic and chlorotic women, are but seldom to be diagnosed," and that many a poor woman is tortured year after year by one gynecologist after the other, while the astute husband quietly conceals his delinquency, and puts all the blame on his innocent wife. Still, women with anteflexions certainly do conceive less readily than women with slight retroversions. And the happy sequence is often laid to the treatment, whereas the abstinence enjoined by the treatment, and the greater ardor of the first coition following, are the true causes of the cure of the sterility. So many accidents, possibilities, and chances influence the occurrence of conception that little can be said on this subject. Fritsch believes the high position of the cervix, its firm apposition to the posterior vaginal wall, and the presence of tenacious [illegible] the cervix, to be more potent factors in preventing con-[illegible] than the size of the external or internal os, for he has [illegible] that event occur in the most unfavorable shapes of the cervix.

The author fully believes in Sims' position for all manipulations on the cervix, and deplores its want of appreciation in Germany. Curiously, on page 44, he gives a woodcut of Dr. Chadwick's examining table, arranged for placing the patient on her *right* side, and showing the patient in that position. While the Sims' can readily be used in the right semi-prone position, that decubitus is not as convenient for the nurse, or for the operator if he be alone, as the left, and certainly is not the one usually employed. I suppose the mistake was made by the engraver in transferring the drawing to the block.

The use of the sound as a means of diagnosing an anteflexion is very properly condemned by the author. I even go so far as to teach that the sound (with rare exceptions) is never to be introduced until the position, size, and mobility of the uterus, and the condition of the parauterine pelvic tissue and the ovaries has been ascertained by bi-manual examination, and thus all counter-indicating elements have been eliminated. But for the purpose of deciding upon the necessary treatment, the width, tortuosity, and tenderness of the uterine canal may often need to be ascertained by the sound. This is best done through the touch, with the patient on her back, the sound being of flexible copper. In case of failure to pass the angle of flexion, the uterus may be straightened by pushing up its body with a cylindrical speculum, and sounding through it, or by performing the maneuvre in the lateral position, with or without Sims' speculum. The aid of the external hand to press back the fundus uteri, and thus straighten the organ, while the internal finger steadies the sound, might have been mentioned as an occasionally useful practice.

In discussing the treatment of anteflexion, the author includes various frequently concomitant affections not necessarily comprised in the distortion, such as dysmenorrhea, cervical catarrh, narrow external os, peri- and parametritis, and gives generally very practical directions for their treatment. A true remark is, that every case must be treated on its individual merits, not according to routine, and that routine-specialists must not think their cases cured because they do not return. Indeed, he says, many patients rid themselves of the specialist by professing to be improved when such is not the case.

The avoidance of too much local treatment, when there is perimetritis present, the utility of hot sitz-baths, and the omission of hot vaginal injections when the vaginal vault is very tender to the touch, are points worth considering.

After describing the scarification of the cervix for hyperemia (which F. truly says is beneficial if the punctures give exit to a free flow, but useless if but little blood exudes); the quadrilateral incision of the narrow external os (which he performs by trimming off the thin edge of the os between the four incisions); condemning the posterior division of the cervix as irrational; and devoting a number of pages to the discussion of dilatation of the uterus and the treatment of uterine catarrh (for which latter affection F. expresses his disbelief in the utility of the curette, forgetting, however, to discriminate between the curetting of the endometrium proper and the cervical canal, in the chronic catarrh of which latter locality the sharp currette especially is almost indispensable), after all these preliminary remarks, the author arrives at the main-spring of the section on treatment, the subject of pessaries. He explains his long introduction on the ground that in but few cases is the anteflexion the cause of the symptoms, which generally arise from one of the conditions already referred to, and cease on their removal. For the comparatively few cases of acute anteflexion, and those instances in which no other cause for the dysmenorrhea but the flexion can be found, that condition requires special treatment. Does the author forget or disbelieve in sterility as a symptom of anteflexion? He begins with the following sentence: "It may be considered as generally admitted at present that an influence on the anteflexion by vaginal pessaries alone is impossible." Further, speaking of complicated pessaries in general, the rule is: "If such a pessary is borne, it does no good; and if it to any extent answers its purpose, it cannot be borne." He has been led by the trials of years to abandon all "so-called anteflexion pessaries," which seem to him to raise, not so much the fundus uteri, as the patient's spirits.

In this assertion the author certainly goes too far. I am aware that many authorities in this country agree with him in his view of the inefficacy of pessaries for ante-displacements. The recent discussion in the Obstetric Section of the American Medical Association at Richmond clearly showed this. But our European brethren, with all their science, are not always as ingenious in mechanical expedients as the Americans, and I fear our author has not tried the various anteflexion and anteversion pessaries of Dr. Thomas, which, if they do not cure a flexion (and I doubt whether this is ever done except by intrauterine stem, and then but rarely) certainly give relief to the symptoms, and, by gradually straightening the canal, give the opportunity for conception to occur with its possible cure during puerperal involution. The recommendation of a Mayer's (thick rubber) ring or a Hodge pessary to elevate the uterus will do very well for anteversion with descensus as a substitute for something better; in still curable cases, and in reducible anteflexions, such clumsy instruments as a Mayer's ring should be entirely discarded. As regards intrauterine orthopedics, Fritsch very sensibly says that the number of cases in which the source of all the patient's troubles is to be sought exclusively in the flexion, and in which all other remedies (sounding, intrauterine medication, repeated dilatation) fail, is a comparatively small one, and the necessity for the stem pessary will, therefore, be proportionately rare. There are undoubted cases in which the stem offers the only chance of relief from dysmenorrhea before the last resort of oöphorectomy is required. That only a stem will straighten an anteflexed uterus of the third degree need scarcely be proved. F. has used the stem but in six cases in nine years. The inevitable rule should be laid down that, "as soon as spontaneous pain arises, the physician is to be called." I would amend this rule by inserting, "the stem should be at once removed, and the physician called," for which purpose I always attach a string to the stem, so that the patient can, by gentle traction, easily remove the stem, and I show her exactly how to do it. With this precaution, while I have repeatedly seen acute pain in the hypogastrium and ovarian congestion arise after the stem had been worn a few days or a week, I have seen no inflammatory reaction except in two cases in which the patients disobeyed my positive directions and continued to wear the stem for several days in spite of the severe pain. I have now two patients wearing such a smooth, hard-rubber stem with an Albert Smith retroversion pessary, the one for two months, the other (a retroflexion, the only case of that deformity in which I have found it necessary to use a stem to keep the fundus up) for four weeks, and both with perfect satisfaction.

In the chapter on Anteversion, the author's diagram representing that condition seems to me exaggerated. He lays the uterus almost parallel with the anterior wall of the vagina, and would but need to depress the fundus a little more to bring it out under the symphysis. His mistake is, that he leaves too much space between the fundus and the symphysis. I have always found the fundus in anteversion resting against the os pubis, and the cervix lower in the pelvic cavity, not tilted up as high as he puts it. I therefore believe that there is usually more or less descensus with every anteversion, due to the subinvolution and hyperplasia of the uterus and the relaxation of its supports, generally preceding this displacement. In my criticism of Fritsch's exaggerated anteversion diagrams, I am confirmed by a photo-lithograph from nature of an anteverted uterus entirely attached to the bladder, shown in plate XIV. of Winckel's Photo-lithographic Plates of the Female Sexual Organs (just out). Here the uterus is shown moderately antecurved and anteverted, with its fundus on a level with (indeed, attached to) the apex of the bladder.

Fritsch states that a large part of the symptoms of anteversion are due to the complications which produce that displacement. The chief symptom from the anteversion itself is the pressure on the bladder. Another is the menorrhagia from congestion of the uterus. F. says that the blood is retained in the uterine cavity, because the fundus is lower than the cervix: but I cannot agree with him in this extreme anteversion theory.

The cure of many anteversions is rendered difficult or impossible by adhesions which attach the cervix posteriorly or (more rarely) the fundus anteriorly. Remove these perimetric exudations, and the anteversion may persist without producing symptoms. The indication always is to remove the causes of the displacement (parametritis, congestion, subinvolution) by appropriate means. F. speaks very highly of daily glycerine tampons with scarification of the cervix, if the uterus is congested. Of pessaries for anteversion, he seems to know but one, that is Mayer's flexible ring, identical with our Meigs' or a thick Peaslee's ring. This he advises to introduce with a forceps, devised by himself, which compresses the ring and permits its easy introduction. I have always found my fingers to answer admirably whenever I cared to use this pessary (which has not been very often), and cannot see the necessity of this pessary-forceps. I would recommend the author to study Dr. Thomas' chapter on anteversion and its relief by mechanical supports. The relief given by the elastic ring (which I do not deny, merely asserting that its elasticity is a wrong principle in vaginal pessaries where a cure is desired) is due largely to the elevation of the whole uterus and the removal of tension on the inflamed ligaments, less to the lifting up of the fundus alone.

In conclusion, F. says that the prognosis as regards a return to health is unfavorable; the complicating conditions may be relieved, but the displacement remains. That anteflexion and anteversion combined may produce such fearful symptoms as possibly to call for oöphorectomy seems to me doubtful.

A very practical remark is made by the author, that vaginal and uterine examinations are by no means always contra-indicated during the menstrual flow. With all due caution they may be then employed, and will often give valuable information in anteflexions.

In the chapters on Retroversion and Retroflexion (comprising sixty-two pages), the author goes even more into etiological details and therapeutical minutiæ than in the section on anterior displacements. In describing a retroversion, he says that, if the uterus in the erect position of the woman is found parallel with the longitudinal axis of the whole body, the organ is in the first stage of retroversion; the same is the case if the uterus forms a smaller posterior angle with the plane of the superior strait than a right angle. One statement with which I do not feel disposed to agree in its totality is, that retroversion is always but a temporary displacement, since retroflexion or prolapsus very soon develop out of the version. I have certainly seen retroversion of the second degree persist for a year or more without even a flexion of the cervix being developed, although as a rule, no doubt, the uterus does become bent more or less at the vaginal insertion, especially when an improperly fitting pessary is worn. I have seen many cases of retro-displacements of the uterus year after year, and should be false to my experience if I admitted that flexion was the most frequent variety, or the common consequence of retroversion. From a passage on page 83, I infer that Fritsch means that retroversion of the puerperal uterus is but a temporary condition, wherein I can only partly concur. The most frequent cause of retroversion is the universal relaxation of the uterine supports during labor; but the first effect of the puerperal state in the uterus is anteversion or anteflexion if the latter condition existed before; only after the uterus has become more or less involuted does it gradually retrovert (of course, only in those cases in which the supports do not regain their tone and in which the organ is at all displaced). With every retroversion, as we might expect in view of the increased size of the uterus, there is some descent. Fritsch gives diagrams of retroversion without descent, posterior total adhesion, and retroversion with anteflexion, the latter of which positions I have already discussed.

The treatment of puerperal retroversion, according to the author, consists in the immediate introduction of a Mayer's ring-pessary. The "curiously shaped and curved instruments nowadays often inspire more confidence among the profession, but old, simple means are not to be undervalued. A small ring should be used." This last condition is the saving clause of his advice, for a large ring would only stretch the parts and increase the relaxation of the uterine supports. Why a properly curved Hodge or Albert Smith, of not too large a size, should not answer better than these clumsy, filth-retaining and filth-breeding rings with small central aperture, is not clear to me. I recognize the sustaining and elevating action of the ring, but the same result is obtained in a much more rational manner (as regards re-anteversion of the uterus) by a lever pessary, and I have thus employed the latter instrument several times with permanent benefit. F. is particular, to do him justice, in enforcing the rule to use a small ring, for the very reason given by me. The lever pessaries, he says, give pain, indent the unusually soft parts, produce discharge (and what else does the ring do ?—Rev.), and are painful to insert (sic !). A very correct remark is that the beneficial influence of the pessary is more exerted when the woman is erect and walks about, for the intra-abdominal pressure on the posterior surface of the uterus in that posture aids in restoring the normal position. And this may occur within a week. The author very properly expresses a doubt as to whether it is possible to retain a formerly retroflexed uterus in the normal position by timely postural treatment after labor. Of all times this is the most favorable; and what does our treatment of displacements achieve after all, but to sustain the uterus *temporarily* in a more correct position? The author always places puerperæ, whom he knew to have retroflexion or version before pregnancy, in the lateral position from the first day after delivery, and from the third or fourth day even for hours in the latero-abdominal position.

In the chapter on Retroflexion, the author traces the gradual development of the flexion from the version, and discusses the etiology of flexions in multiparæ, in whom a previous version, F. says (I think incorrectly), does not exist. A few cases of retroflexion have been observed at autopsies of new-born children, but the etiological factor in nulliparous women appears to be a certain flabbiness of the uterine muscle. This flabbiness is attributed by Hildebrandt to the habit of masturbation, with its frequent unnatural and incomplete hyperemias, and consequent uterine catarrh and hyperplasia. At least, says H., retroflexions are often found in masturbating women and such as are married to impotent men. Fritsch very properly remarks that this train of pathological conditions would be more likely to produce anteversion. He has observed in a few cases a retroflexion developing from an anteflexion, and is inclined to believe that, as a rule, the retroflexions of nulliparæ originate in this manner. In the peculiar cases of flabby uterus which can be bent in any direction by the finger, I have no doubt he is right. A congenital shortness and contraction of the posterior peritoneal folds, the effects of frequently recurring pelvic hyperemia (during menstruation and fruitless coition) in thickening the uterine supports, these factors have been referred to by the author in the chapter on anteflexion.

The most obstinate cases, in which recovery is scarcely ever to be expected, are the retropositions of the uterus in which the whole organ is retro-displaced and attached by its whole posterior surface to the rectum.

The symptoms of retroflexion are sufficiently well-known not to require repetition. The presence of menorrhagia is very common, owing to the congestion of the corpus uteri. I can confirm the author's statement, that in women past the usual menopause menstruation is often prolonged by the presence of a retroflexion, and can add the experience, that a hyperplastic condition of the endometrium (endometritis villosa, or hemorrhagica) is a frequent result of a long-continued congestion. Remove the diseased portions of uterine mucosa with the curette, elevate the uterus and keep it up with a pessary, and the hemorrhage ceases; merely elevate the uterus, however, and the flow in these cases will still continue.

Fritsch gives the displacement of the ovaries their proper importance in the production of local pain and reflex neuroses, in which latter symptoms he finds nothing mysterious. The reflex nervous symptoms, arising from retroflexion (hemicrania, cough, gastralgia, cardialgia, etc.), are also pointed out. As regards the treatment, Fritsch lays great stress—and very properly—on the necessity of ascertaining the mobility and replaceability of the uterus, before attempting to insert a supporter. He gives three excellent diagrams of the manual reposition of the retroflexed uterus, in which maneuvre (the patient being on the back) he pushes up the fundus with two fingers of the left hand until the other hand can seize the fundus through the abdominal walls and antevert it. If the dislodgment of the fundus is difficult, the middle finger pushes up the fundus while the index presses back the cervix. This manipulation often succeeds without difficulty if the abdominal walls are thin and impressible, but fails if they are thick and tense. I have nearly always succeeded with two fingers of the right hand, the patient being in the left latero-prone position, first pushing up the fundus with both fingers, then supporting it with the middle finger, while the index draws back the cervix; once the line of gravity reached, the fundus falls forward by its own weight. The left hand can also be used in this position when the fundus is hard to dislodge; the leverage thus exerted by the first two fingers of the left hand exceeds that of the right hand. I cannot help questioning the necessity of the author's practice of always examining even nulliparæ, after the first exploratory investigation, with two fingers. If the uterus rebounds to retroversion, adhesions are present; and if this occurs, although the patient is in the knee-elbow position and retains it for a minute longer, undoubtedly a surface-adhesion exists.

I can confirm the author's statement that the reposition of some retroflexed uteri is more easily effected and with less pain by the sound than with the fingers, and such careful sounding does no harm. He makes the general statement that since he has better understood bi-manual examination he has used the sound much less, and that he has never seen any of the injurious consequences following sounding which the authors describe.

The author begins the subject of pessaries with the sentence: "It is necessary to state that a pessary cannot be imagined which by its independent action changes a retroflexion into an anteversion." Only anatomical ignorance can excuse the belief that a pessary can directly lever about the body of the uterus. This statement shows that he correctly understands the principle upon which a retroversion pessary should act, viz., to sustain the uterus in the normal position given to it by manipulation, and I am surprised to find him saying (p. 135) that only when reposition is impossible, and the ideal object of correctly placing the uterus is abandoned, is a Hodge pessary to be tried. It would be well for him to try the various modifications of that pessary (Albert Smith's, Noeggerath's, Thomas') before giving the Hodge lever such a sweeping condemnation. He prefers two pessaries for all retro-displacements, the figure of 8 of Schultze for replaceable uteri (the cervix fitting into the posterior ring) and lauds it highly, and the Mayer's thick ring, for irreplaceable uteri and very tender vaginæ. The latter may also be used as a preparatory instrument to the first variety. The author is evidently a great believer in pessaries, but not in the multitudinous varieties and modifications which Emmet and his (in this respect) German follower, Schultze, think necessary. It is possible for me to refer to but a few of the interesting points in this section which I had marked, and on which I either agree or differ. Suffice it to say that the author in his discussion of pessaries shows that he is thoroughly familiar with the subject, and has gone into details such as no general text-book ever touches upon. He omits many points and practical details which I have introduced into my chapter on pessaries in my work on "Minor Surgical Gynecology," such as directions for inserting and removing pessaries, reposition by posture and pneumatic pressure, etc., but the whole chapter is so replete with information that I heartily recommend it to the profession.

As regards the prognosis of the treatment of retroflexion, the author says that no definite time can be stated as the limit within which the uterine supports will regain their healthy tone, the uterus its normal size and texture, and the displacement be permanently cured. Three months might be the shortest limit, and only in recent cases can a positive cure be expected. But no retroflexion exists in which proper treatment will not produce relief and improvement.

The chapter on prolapsus uteri occupies the next ninety-one pages. The different degrees are illustrated by drawings, the majority of which are original, and the section on treatment discusses chiefly the operative cure of the affection by the various methods of Fricke, Hegar, Bischoff, Martin, Lefort, Simon, Fritsch, all illustrated by diagrams. The author very properly says that he has "but little to say about pessaries for total prolapsus," and condemns the indiscriminate plugging of every prolapsed vagina with the largest possible mass of wood, glass, rubber, or gutta-percha which can be crowded into it. He recommends one pessary, which has the shape of a slightly bent single lever Hodge, as a "cross-bolt," as he calls it, for the pelvic outlet; this instrument he obtained from a model made by taking a plaster cast of the pelvic cavity, and tracing a groove in its surface, and filling it with wax. This pessary rests transversely in the pelvic cavity, on each descending ramus of the pubis and ischium. As he utterly condemns the much-quoted ball and T-bandage supporter of Scanzoni, the diagram of that apparatus might as well have been omitted. The agencies which retain the uterus in its normal position are stated to be simply the upward pressure of the soft parts below it (bladder and vagina) and the downward pressure of the intestines (intra-abdominal pressure); those which prevent its descent are the peritoneum, the peritoneal attachments, and the resistance from below (the normal position, shape, and tone of the vagina). I regret to be obliged to pass over this chapter and the remainder of the book with a haste entirely disproportionate to the merits of the part. The book closes with a chapter on Inversion, and sections on Latero-version and Elevation of the uterus, and Hysterocele or Uterine Hernia, and with a long array of literary notes.

A careful survey of the book fully justifies the anticipations which I had formed when I began to read it. Its originality of thought, clearness of expression, and thoroughness of description in all that relates to the etiology and pathology of uterine displacements merit the highest approval; as regards the therapeutic portion, while I am disposed to differ with the author on many points, the same praise must be awarded. Let the pages on pessaries be supplemented by some author of experience, whose views on the utility of these instruments differ from those of the author, and that subject may, from our present standpoint, be said to be exhausted. The illustrations are nearly all original; they are not works of art, but strive to be anatomically correct, and clearly express (being all on the same scale) what they design to represent. No gynecologist, or indeed practising physician who treats uterine displacements, should fail to read the book. Should he directly learn nothing from it to aid him in practice, he will at least be stimulated by many of its passages to fresh thoughts and new methods. P. F. M.

OBSERVATIONS ON THE CESAREAN SECTION, CRANIOTOMY, AND ON OTHER OBSTETRIC OPERATIONS, With Cases. By THOMAS RADFORD, M.D., F.R.C.P. Edin., F.R.C.S. Eng., etc. Second Edition. London: I. & A. Churchill, 8vo, pp. 225, 1880.

The operation known as the Cesarean section has now been before the profession many years, and it might be expected that its rank and place among surgical procedures had been definitely settled. Yet this is not so. In fact, modern opposition to it, at least from some quarters, is scarcely less violent than was that of years ago. And the same may be said in regard to its advocacy by friends of the operation. Perhaps Radford is right in asserting that "there has been no subject connected with medicine which has created more bitterness of feeling and animosity in the minds of those who may be classed as Cesareanists and anti-Cesareanists." In Manchester, it would appear, these "repugnant and unprofessional feelings" were particularly keen and lively. Now the author was, and still is, a resident of that city. He has, therefore, undertaken to sift the controversial matter relating to this subject, and, by a conscientious study of exclusively British and Irish facts, he proposes to determine the true status of Cesarean section as a legitimate surgical measure.

It is to be regretted, however, that Radford, in his introductory remarks, does not hesitate to assure us that his object is to "endeavor to place the Cesarean section and some other obstetric operations on such medical, social, and moral grounds as to be approved by both the profession and society at large." Certainly this expression of personal opinion, however justifiable in the abstract, cannot here be taken as the impartial verdict of a cautiously deliberating judge. It sounds too much like the *a priori* frank avowal of some bold partisan. Nevertheless, the author turns out to be a faithful recorder of past endeavors, even if he be a firm and sometimes enthusiastic advocate of future trials. What we like about the author's book is that he does not deal haltingly with the various questions discussed; he is vigorous and emphatic in the assertion of what he thinks constitute legitimate claims to universal recognition. This fact contributes largely to make the volume a readable one, in spite of the numerous statistical data interspersed with the text, which differently presented, must inevitably prove wearying.

There are two parts to the work, and the first of these is divided into ten separate chapters, whereas the second has only a few headings, and contains in addition three tables of cases chronologically arranged. In the first chapter we have explained to us the necessity of the Cesarean section as an obstetric operation. The key-note of the author's sentiments in this direction may be found in the following passage, which will doubtless receive the assent of all fair-minded obstetricians. He thinks the operation is required "whenever the pelvic apertures or its cavity are so diminished that a mutilated infant cannot possibly be drawn through." The manifold causes of such diminution having been set forth, the author proceeds to give an analysis of British and Irish cases. The writer almost pathetically asks, in connection with the delivery of a woman possessing an inadequate pelvis, "Must she die undelivered with a mangled infant still in the womb?" Quite at the end of this chapter we learn, with some surprise, that it is a "well-known fact that the infant survives the death of its mother much longer than is usually supposed." But that is very odd, Mr. Radford, for, if the above fact is so well known, on what grounds do you assume that the contrary is "usually" supposed?

Chapter II. is statistical, and in it we are told that "the risk to infants in Cesarean births is not much greater than that which is contingent on natural labor," that is, "provided correct principles of practice are adopted." It is evidently a great pity that their adoption has not hitherto been more prevalent. Perhaps Radford's book will contribute towards such a consummation.

The chapter which follows deals with the causes of maternal and infantile mortality. A rather complete exposé is given of the various etiological factors which have determined the frightful maternal fatality in this operation. But though we fully agree with the author as regards the existence of the evils he points out, we cannot believe that their recognition will fully remedy those defects. Of course, such knowledge points to and suggests the road along which relief must come. But human prejudice and ignorance are mighty obstacles to overcome, especially when the profession itself is far from being unanimously in favor of a certain measure which the rest of mankind naturally shrink from with horror and disgust. Thus it comes that surgical interference in the actual concrete case is as a rule postponed until unfortunately all aid proves futile. This may not appear humane, but it is, for all that, very human: so much so, that we may reasonably doubt whether the Cesarean section will ever be able to overcome to the same extent that ovariotomy did, the inherent prejudices of mankind. Maternity will always enter as an additional factor into the computation and balancing of results and possibilities. The new life, or at least a hope of the same, apart from all maudlin sentimentalism, can, of course, never be ignored either by the surgeon or the patient's family, even should the mother be voiceless. The latter will naturally take precedence before the unborn babe, which as yet is practically a non-entity. Every one of us who has been confronted with the complexities here but faintly indicated must be aware that general principles are nowhere less applicable than in precisely this predicament. Each case indeed has its own individual features, and every operator his private personal convictions and feelings. These are the attending circumstances which will mould and fashion conduct in a given case, and not the recognition of broad general principles, however irrefragable their logic may appear to be.

Radford favors an early performance of all obstetric operations, either manual or instrumental. As an abstract principle of general applicability, no argument is necessary to establish the justice of this assertion. Yet we fear that the peculiarly unfavorable circumstances under which a physician is as a rule summoned to decide the yes or no of a Cesarean operation, in some degree justify the hesitation which may have had a baneful influence on the termination of so many recorded cases. It requires boldness, courage, faith, and perhaps an oblivious disregard of ulterior consequences, to expose one's self to the possible accusation of having been instrumental in bringing about the death of an individual, let alone two. Not every man is in a position to be able to incur any such risk. These are delicate problems, requiring the exercise of much foresight. And in the end, when the promptings of professional intelligence would give the dominant impulse to action, a faint qualm of conscience may arise to blur the clearness of a resolution, and this, too, without the influence of religious feeling, and in minds untrammelled by theological dogmas.

The way in which the operation should be performed forms the subject of the next chapter. From the author's painstaking insistance upon apparently insignificant details, we discover that his methods are careful, cautious, and prudential. His personal experience extends to two successful cases, and this fact alone entitles him to explain his own manner of procedure. It differs in no essential respect from the manner of every operator posessing intelligence coupled with boldness of purpose, and exercising all needful circumspection. Avoidance of wounding the placenta is emphasized, at least so long as the child is alive. As regards after-treatment, Radford has found a negative plan most advantageous. His negative plan, however, appears to include opium, which is to be given in full doses, if required. We never did approve of would-be specifications so hopelessly indefinite as this specimen recommendation. Unless we are also told when a drug is required, it is utterly absurd for one physician to tell another to give it, *if it is required.* A whole volume might be filled with axiomatic truths equally incontestable, though not, perhaps, equally superfluous. The choice of an anesthetic is left an open question by the author, since the "data which exist on this subject are very meagre and very contradictory."

In the following chapters, Radford considers those measures which are to be adopted with a view to saving the life of both mother and infant. This division embraces the employment of the long forceps, turning, and the induction of premature labor. A cautious but persevering trial of the long forceps is recommended in all cases " where the distance from sacrum to pubis is three inches and a fraction under, and where there exists sufficient space in the transverse diameter." The reason why the author does not hesitate to thus express himself is, " because it is quite impossible to compute either the position and relative space of the pelvis, or the size, compressibility, or other conditions of the head of the infant with such mathematical certainty as to warrant any person to destroy life."

With reference to turning in cases of slight distortion of the pelvis, the operation is justly described as a conservative manipulation of unquestioned and unquestionable propriety. On premature labor, the author says that it is an operation " justifiable on moral grounds, and approved of on every social and professional principle." Moreover, it is " simple, safe, and efficacious," and yet it ought " never to be performed without great necessity, nor without having been first well considered and sanctioned by a consultation." We have thus freely quoted the author in order, first, to show that he has decided opinions and knows how to express them in unmistakable language, and that, secondly, he does not become the headlong advocate of rash procedures. .

After the different methods of inducing premature labor have been passed in review, the author adverts to a proposition made in this connection as early as 1844. At that time he advocated galvanism as an important means of arresting uterine hemorrhage, and likewise recommended its use for the induction of premature labor. Experience since then has exercised no modifying influence over this opinion, since he still holds it unchanged.

The means of delivery by destructive operations come next, and the author gives a satisfactory though brief account of the various methods now in use. Concerning the induction of abortion, he justly says that, in certain cases, it is " utterly impossible to perform this operation; and, in many cases, great risk is incurred by making the attempt." As regards the practising of craniotomy, it is asserted that it is sometimes " quite impossible, by any means whatever, either by the use of the osteotomist or of the cephalotribe, to deliver the woman." For this and various other reasons set forth in its text, and more particularly in a special course of lectures delivered before members of the profession, Radford strongly denounces craniotomy as an operation of election. It may, however, be conditionally accepted in the latter sense in certain cases, and it is to be recommended as an operation of necessity. He thinks that the facility of its performance has led to its abuse, and in this he is probably right.

Two pages, constituting a separate chapter, are devoted to a brief mention of symphyseotomy and the mechanical dilatation of the pelvis. In regard to the first proposition (*i. e.*, that of symphyseotomy), the author grows rather indignant, stating that

"British medical literature has only once been disgraced by the record of the performance of this operation." With reference to the second proposal, Radford believes in the possibility of diseased bones yielding to pressure, but, in his opinion, "practical rules cannot be based on such an uncertain event where life is concerned." In the ninth chapter we find a short essay on the comparative value of maternal and infantile life. According to the author, destructive operations may be legitimately performed but once on the product of conception in the same woman. He entertains a conviction that "a great proportion of our profession have most conscientious scruples to repeat this revolting operation in the same woman." Probably the general sentiment of the profession in our country is about equally divided on a problem so perplexing, and one, moreover, involving such nicety of discrimination in the given case. And yet, we take it that Radford is right when he asserts that, under certain circumstances, such as an incurable malady of the mother, "the infant's life ought not to be sacrificed for the mere ideal chance of prolonging her miserable life" (*i. e.*, the mother's). The chapter closes with the expression of a laudable sentiment, whose wide scope, however, makes it appear rather "a consummation devoutly to be wished" than an event of probable or, for the matter of that, even possible realization. We refer to the following statement: "every woman in whom there exists organic impediment to the passage of a mature or full-grown infant, ought to be at proper time fully informed of the nature and as to the degree of the obstacle."

Some considerations on the Cesarean section as an operation of election are offered in the following chapter. The author believes the recoveries after this procedure, though few in number, ought to "encourage us to hope, and, indeed, ought to inspire us with confidence, that if the operation were earlier performed, and on a different class of subjects, it would be attended with infinitely more success." We have already pointed out why, in our estimation, an early performance of this operation, notwithstanding its theoretical desirability, will often be rendered practically impossible or, at least, improbable. Possibly conservatism in this sense is not the result of logical inference or calm judgment. But we have explained why reason in this instance is not the sole determining factor of a resolution involving immediate responsible action of such undoubted gravity as the performance of this operation. One thing we may at once concede to the author, and that is the evident sincerity of his remarks. Whatever of exceptionally favorable experience he may have had personally, he is not influenced by such narrow considerations in his urgent advocacy of Cesarean section as an operation of election. He takes the broader ground of general utility, and even if we cannot agree with his conclusions, we may at least admire the spirit of conscientiousness which prompted such inquiries and governed the prosecution of his task.

Part II. begins with some explanatory introductory remarks, and then the relative position of craniotomy is discussed at some length. The main arguments employed in determining the comparative value of maternal and infantile life are here reiterated and amplified. The gist of the whole matter is that Radford thinks the estimate placed upon the value of the life of the unborn infant is entirely too low, and has led to most unwarrantable abuses.

Next in order comes the explanation and brief statistical summary of the tables annexed to the subject matter of the book. The following points are specially considered: general statistics, maternal mortality, infantile mortality, exhaustion, peritonitis, hemorrhage, chloroform, ether-spray, sutures, and a résumé of the most important points connected with the actual performance of the operation. For the details of these different sections, which contain a variety of useful and interesting information, the reader is referred to the text.

In reviewing the operation, Radford presents a few points which, from their comparative antiquity, appear quite novel and modern. He says, among other things, that chloroform, by leading to uterine inertia and vomiting, is an unsafe anesthetic. Local anesthesia by spraying the line to be incised is safer. We may be permitted to remark that, if anywhere, it is in the pregnant condition that chloroform has been found to be an unusually safe anesthetic. And secondly, the very superficial and quite evanescent local anesthesia of the ether spray does not merit in this connection the name of anesthesia at all. Radford further remarks that, to avoid hemorrhage, "operate very early and without anesthesia." In our opinion, if the woman is in a condition so low as to render the administration of an anesthetic dangerous, she is certainly unfit to undergo an operation so severe, and possibly so protracted as Cesarean section.

A special division is then devoted to the instruments used in craniotomy, and this is followed by a rather detailed description of seven cases of Cesarean section, which had been previously published. The author has given outline sketches of the brims of the pelves of most of these women. They are prefixed to the text of the volume (*i. e.*, not the women, but the sketches). Then come the tables recording all the known cases in Great Britain and Ireland, and the work closes with a brief reference to the means proposed to supersede the Cesarean section. We find there a quotation from Blundell, which, together with other remarks made by this writer in 1821, point out most clearly that he ought to be strictly considered the pioneer of abdominal surgery. Porro doubtless based his operation on Blundell's suggestion on the extirpation of the puerperal uterus.

From the abundant quotations from Radford's work the reader will, no doubt, have gathered information concerning the quality of his style, which is clear, often pithy, sometimes eloquent. He is always emphatic, never ambiguous, and occasionally quite enthusiastic. That he never lacks faith and sincerity has already been stated, and we doubt not but that this second edition of his work will command greater attention, and gain for itself a wider circle of readers, than did the first. The make-up of the volume is in the usual style of Churchill's publications.

EDMUND C. WENDT.

EDITORIAL.

In accordance with a sentiment entertained by a large portion of the profession for a more frequent publication of the current literature of obstetrics and gynecology, the Editor and Publishers have decided, beginning with January, 1882, to issue a monthly supplement to the JOURNAL OF OBSTETRICS, containing the proceedings of societies, book reviews, and abstracts, and to limit the quarterly numbers to original articles. There will thus be issued twelve monthly numbers of 32 pages each, and four quarterly numbers of 256 pages each, being a total of 1,408 pages in a year, or 384 pages more than are now furnished.

It is hoped that in this manner the demand for a more contemporaneous publication of current literature may be met, and that society transactions and abstracts may be kept up to time, while the scientific usefulness of the journal as a quarterly and a repository for long, exhaustive articles will also be maintained. This change will be made without any increase in the subscription price of the JOURNAL to all prepaying subscribers.

The Editor takes pleasure in announcing that, in deference to the proper representation of the large number of subscribers to the JOURNAL in Europe, and with a view to the increase of its circulation abroad, the active co-operation as collaborators of Drs. Robert Barnes, in London; Carl Schroeder, in Berlin; and Pierre Budin, in Paris, has been secured, and that the business interests of the JOURNAL have been intrusted to prominent publishing firms in London, Paris, Leipzig, and Madrid.

DEPARTMENT OF DISEASES OF CHILDREN.

EDITED BY . . . GEORGE B. FOWLER, M.D.

ORIGINAL COMMUNICATIONS.

PLEURITIS IN CHILDREN.

BY

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(Concluded from page 217, Vol. XIV.)

Diagnosis.—Ordinarily, a careful observance of the history, symptoms and physical signs enable the physician to make a positive diagnosis. Obscure or doubtful cases occur chiefly in infancy. Circumscribed pleuritis, or pleuritis attended with little or no liquid exudation, is obviously most apt to be overlooked, and its symptoms mistaken for those of another disease.

Pleuritis, before the stage of exudation, may be mistaken for pneumonitis, since the prominent symptoms in the commencement of the two diseases are similar. But in pleuritis there are commonly greater acceleration of pulse and respiration, greater suffering, as evinced by the features, greater tenderness on percussing or pressing the chest-wall, and a more decided expiratory moan, while the patient probably endeavors to repress respiration on the affected side, so that inflation of the lung is partial and shallow. It will aid in the diagnosis to recollect that, in children under the age of five years, acute pneumonitis is, in most instances, catarrhal, and not croupous, and is preceded and accompanied by severe bronchitis, being due to downward extension of the inflammation from the bronchial tubes. It therefore does not begin with the abruptness of pleuritis.

Pleuritis with effusion may be mistaken for pneumonitis in the stage of solidification, for hydrothorax, or, on the left side, for pericardial effusion, or *vice versa.* But the percussion sound over a pleuritic exudation is either tympanitic or flat, while over a lung solidified by inflammation it has some resonance, though dull. There is also a sensation of greater resistance and solidity in percussing over a pleuritic exudation than over an inflamed lung. Moreover, the respiratory murmur, whether vesicular, broncho-vesicular, or bronchial, is more distant and less distinct to the ear of the auscultator when applied over a liquid than over solidified lung. A pleuritic exudation, unless slight, also changes the apex beat of the heart, pressing it towards the median line in left pleuritis, and away from the median line in right pleuritis, as has been stated above—a change not observed in pneumonitis. Bulging of the intercostal spaces, expansion of the chest-walls, change in the height of the fluid by change in the position of the child, important signs in the diagnosis of adult pleuritis, are, as we have seen, commonly absent in young children, even when there is abundant liquid effusion, but they are sometimes observed in children of a more advanced age. Bronchophony and vocal fremitus, signs of pneumonic solidification, are absent, or so feeble in the pneumonitis of young children that their absence cannot be regarded as indicative of the presence of pleuritic effusion, except in children over the age of four or five years. Moreover, these signs, when present, do not necessarily indicate pneumonitis, for if, in pleuritic effusion, the ear or hand be placed over a part of the chest where adhesions have united the lung to the ribs, and the child be of such an age that the vocal cords have sufficient vibration, both bronchophony and the fremitus may be perceived. The absence or presence, therefore, of vocal fremitus and bronchophony affords only limited assistance in the differential diagnosis ot pleuritis and pneumonitis in young children, although in those of an advanced age it aids in the discrimination of doubtful cases, especially if the examination be made in the infra-scapular region, which corresponds with the location of the liquid, if any be present.

A pleuritic effusion is distinguished from hydrothorax by the fact that the latter is usually bilateral and of slow increase, without symptoms referable to the chest, except when there is considerable effusion, which causes more or less dyspnœa. Pleuritis, unlike hydrothorax, causes fever and other constitutional symptoms, and also a cough, pain in the chest, and early embarrassment of respiration. Moreover, hydrothorax seldom occurs, except from cardiac or renal disease, or scarlet fever.

A greatly distended pericardial sac simulates, in some degree, a pleuritic effusion on the left side, but the absence of symptoms which pertain to pleuritis, as the cough, stitch-like pain in the chest, the localization or greater distinctness of the the dull sound on percussion, in the cardiac region, absence or feebleness of the apex-beat, and indistinctness or distance of the heart-sounds, will preserve the observant physician from error of diagnosis.

Prognosis.—In mild cases attended with little exudation, the inflammation soon begins to abate, and, by the close of the second week, the symptoms have nearly disappeared. In plastic, and sero-fibrinous pleurisies, recovery may be confidently expected, unless there be some grave complication, or perchance syncope should occur from large and rapid effusion. A large effusion, whatever its character, especially if located on the left side, often causes such a twist in the great vessels within the thorax as to seriously retard the circulation of blood and endanger life. In effusions of the left side, the heart is often carried so far towards the right that the ascending vena cava, where it emerges from the central tendon of the diaphragm, is bent at an angle so as seriously to obstruct the return of blood from the lower half of the body, and consequently a reduced quantity of blood reaches the right cavities and the pulmonary artery. The result is a diminished flow of blood in the systemic circulation, with anæmia of important organs, as the brain. The great arteries connected with the heart are also more or less bent in cases attended by displacement of this organ. In effusions on the right side, the right auricle and ventricle sometimes do not expand to the normal extent during the diastolé, on account of the pressure of of the liquid, and the result is similar to that in effusions on the left side, as regards obstructed circulation and anemia of important organs. Therefore, patients with large pleuritic effusions, whether left or right, are liable to sudden fainting and even to fatal syncope. Fortunately, with our present improved methods of thoracentesis, children need not perish in this way if the operation be resorted to at the proper moment. There is another danger. When, in consequence of the exudation, the lung is so compressed that its function is nearly or quite lost, the sound lung obviously receives an augmented supply of blood. It is, therefore, very liable to sudden congestions and transudation of serum (edema). If this occur, the dyspnea is augmented and the condition is one of the utmost peril. Death is apt to result.

The prognosis obviously varies according to the cause of the inflammation and the quantity and nature of the exudation. Idiopathic pleurisies do better as a rule than those which occur as a complication or sequel of some other disease. Absorption is more rapid in the beginning of convalescence, when the fluid is thin, than at a later period, when it has greater consistence. Fibrin, whether flocculent or laminated, is necessarily slowly absorbed, first undergoing fatty degeneration and liquefaction. Empyema, if not relieved by operative measures, continues many months and even after pus is let out convalescence is slow. In the very considerable number of empyemic cases which have from time to time been brought to the class of children's diseases in the Bureau for the Relief of the Outdoor Poor, the histories commonly showed that the disease had continued from three to six months, with progressive loss of flesh and strength. Nevertheless, after proper evacuation of the pus and establishment of a fistulous opening, the majority have gradually recovered, death in the unfavorable cases being commonly due to extreme prostation with perhaps fatal organic changes, as amyloid degeneration and tuberculosis.

Secondary pleuritis occurring in a reduced state of the system, as after scarlet fever, and pleuritis complicated by a grave disease, as pericarditis or pneumonia, are always dangerous to life.

It is the common belief that pleuritic effusions involve greater danger on the left than on the right side, from the fact that the former produces more immediate and direct pressure on the heart and cause a greater twist in the vessels, but Leichtenstern (*Deutsches Archiv für Klin. Med.*, Band iv.) states that, in 52 cases of sudden death from pleuritic effusions, 31 were right and 20 left pleurisies. The walls of the right cavities of the heart, upon which the liquid in the right pleural cavity directly presses, are thinner and therefore more yielding than the walls of the left cavities. The records of the cases collected by Leichtenstern show that sudden death sometimes results from extensive and far-reaching thrombi in the right cavities of the heart and in the superior vena cava, or to emboli detached from the thrombi and intercepted in the pulmonary artery. In grave cases attended by large effusion, sudden death sometimes occurs after some exertion on the part of the patient, as after vomiting, severe coughing, or hurried rising to the erect position, or lifting a heavy weight. It is believed that, under such circumstances, there is a retarded flow of blood through the lungs and into the left cavities of the heart and the aorta, so that sudden and fatal anemia of the brain is produced.

As already stated, death may occur in protracted cases from amyloid degeneration of important organs, as the kidneys and liver. This can sometimes be detected by enlargement of liver and spleen, and the occurrence of albuminuria.

It is evident that the prognosis varies greatly according to the degree of dyscrasia. In profound blood-poisoning, whether scarlatinous, uremic, or septicemic, pleuritis is always grave. Septic pleuritis, which occurs for the most part in new-born infants, during epidemics of puerperal fever, is especially so. When it has continued a few hours, the pinched features and rapid sinking show that we have to deal with something more than an ordinary attack.[1]

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[1] The following case which occurred in my practice during the recent epidemic of puerperal fever (1881) may be adduced as an example: Mrs. D., a primipara, was delivered by the forceps after a tedious labor, at 9 P.M., April 6th. On the following morning, her temperature, without the occurrence of a chill, had risen to 105½°, and her pulse varied between 125 and 134. She was in a critical state for several days, with a temperature varying between 103° and 105½°, and without any local symptoms either of metritis or cellulitis, but finally recovered. The baby, healthy and vigorous at birth, had been allowed to obtain what nutriment it could from the breast, but the nurse remarked that she "never saw a child sleep so much," and I gave very little attention to it, as my time was devoted

Pleuritis is also very severe, and ordinarily fatal, when it is caused by the entrance of some pathological product into the pleural cavity, as pus or decaying lung substance.

Treatment.—It will be convenient, in considering the treatment, to describe that which is appropriate for each of the three stages into which systematic writers have divided pleuritis. First, the stage preceding effusion, secondly, that of effusion, and thirdly, that of absorption and convalescence.

In the beginning of the inflammation, appropriate measures should be promptly employed for the purpose of reducing the

wholly to the mother. On the 10th, when four days old, its sleepiness ceased, and it became constantly fretful, as from colic, and it refused to draw upon the nipple. Early in the morning of the 11th I was summoned to it, and was astonished at its altered appearance, its shrunken features, and its evidently dying state. Percussion upon the right side gave a flat resonance from the clavicle to the diaphragm, and there was some meteorism in the abdomen. The thermometer introduced into the rectum showed no elevation of temperature, and no unusual heat of surface or cough had been noticed by the nurse. By active stimulation the infant lived till the middle of the afternoon. The autopsy revealed a sero-fibrinous exudation filling the right pleural cavity, producing complete carnification of the lung, so that it resembled that of the fetal state, and soft patches or flakes of fibrin upon the lungs. By an oversight, the peritoneum was not examined. Cases like this, of pleuritis in the new-born, having a septic cause, I believe to be rare, and met only or chiefly during epidemics of childbed-fever. Some years ago, I saw a new-born infant in one of the institutions, whose mother had puerperal fever, die in a similar manner, and the autopsy showed that the cause was peritonitis. The following extracts from Trousseau's clinical lecture on erysipelas of new-born infants will aid in understanding such cases. Speaking of Dr. P. Lorain, he says: "During the epidemic at the maternity, where this able and laborious observer was a resident pupil, he collected the information of which the following is a summary: Of 106 still-born infants, 10 were found to have died from peritonitis, and 3 of the mothers of these 10 infants were carried off by puerperal fever after delivery. Of 193 infants born alive, 50 died of the very same affections which proved fatal to the lying-in women. The most frequent causes of death were peritonitis, numerous abscesses, purulent infection, phlegmonous swellings, erysipelas, gangrene of the limbs, putrid infection, or some other remarkable septic condition." . . . "Mother and child then are subject to the same morbific influence." Farther on Trousseau says of the infant affected by this puerperal poison: "He will cry incessantly from pain. A state of restlessness will be succeeded by collapse, which will close the scene on the fifth, sixth, or seventh day. On examining the body after death, pus will be found in the cellular tissue, sometimes *suppurative pleurisy*, more frequently phlebitis of the umbilical vein, or of the vena porta, or peritonitis." An interesting incidental fact shown by these statistics is that the cause of this puerperal disease of the new-born is sometimes operative in the fetal state.

inflammation, and preventing or diminishing, so far as possible, the exudation which soon follows. The abstraction of blood is now properly discarded in the treatment of most inflammations of infancy and childhood, but in certain cases of pleuritis occurring in robust children over the age of four or five, or even three years, the early and judicious employment of one or two leeches diminishes the pain and apparently also for a time the febrile movement and the inflammation. But it may be stated as a rule that the loss of blood is not only not required, but is injurious in all secondary pleurisies, and in the primary form after exudation has occurred. It is injurious in all forms of pleuritis in pallid and cachectic children, and, therefore, in a large proportion of the cases occurring in the tenement-houses and institutions of the cities. The flow of blood from the bites should ordinarily be arrested after two or three hours, but if slight, it may continue longer in vigorous children of eight or ten years.

At the first visit of the physician, an emollient and slightly irritating poultice should be ordered, enveloping the entire chest, to be constantly worn, except as it is temporarily removed during the application of the leech, and the subsequent flow of blood. The poultice should be so mildly irritating that it causes constant redness of the skin without pain, and it should not be removed except when a fresh poultice is prepared to replace it. Thus employed it produces constant dilatation of the capillaries of the skin, and, by the fluxion caused, diminishes, in my opinion, the engorgement of the capillaries of the costal pleura. A poultice of the common white mustard, with flax-seed in powder, one part to sixteen, between two pieces of muslin, and so wet that it moistens the hand in holding it, produces this effect. Applied morning and evening, it can be constantly worn without complaint of pain due to it. For infants under the age of eight months, I prefer the use of the plain flax-seed, with camphorated oil smeared upon its under surface. The oil may be applied several times daily, while the morning and evening application of the poultice is sufficient. Spongiopilin or compresses of flannel wrung out of hot water and covered with oil silk meet the indication, and possess the advantage of being lighter and cleaner, and more readily applied than the poultice. Redness may be produced, by applying under the spongiopilin a single thickness of muslin soaked with camphorated oil, or for children of a more advanced age, with camphorated oil and one-fourth or one-third part of turpentine.

Vesication, formerly much employed, has properly nearly fallen into disuse in the treatment of the pleuritis of children. While it is apt to increase the suffering, it has apparently no tendency to diminish the inflammation, in whichever stage employed, and there is no certainty that it stimulates the absorbents and expedites the removal of the liquid, according to the old theory. A case is reported, in the practice of one of the New York physicians, in which a blister had been applied when the inflammation was still active, and at the autopsy, the portion of the costal pleura which lay directly underneath the surface that had been vesicated was covered by a thicker fibrinous exudation than that upon the contiguous surface. The increased afflux of blood caused by the blister had, to appearance, extended to the costal pleura, and increased the pleuritis. The application of cold bandages around the chest, which is recommended by some, seem to aggravate the cough in certain patients, and do not ordinarily give the relief of moist and warm applications.

Internal Remedies.—The indications are to employ such medicines as diminish the frequent action of the heart, and thus retard, in a measure, the flow of blood to the pleura, and such as diminish the pain and frequency of the cough, which, by increasing the friction of the pleural surfaces, tends to increase the inflammation. For robust children over the age of three years in the first stage of primary pleuritis, the tincture of aconite may be employed, half a drop for a patient of three years, and one drop for one of six years, every third hour for two or three days, or until the required impression be produced upon the pulse, when it should be discontinued. It is, as a rule, too depressing for other patients. Digitalis is a better and safer remedy for children under the age of three years for all secondary pleurisies, and for all cachectic cases. Benefit results from continuing the use of digitalis in the stage of exudation when aconite would be inadmissible. A child of two years can take one drop the officinal tincture, and one of five years two drops every three hours.

The use of quinia is suggested, since it is an antipyretic and tonic, but in my practice it has been much less useful in pleuritis than in pneumonitis. I have been led to suspect, from some observations made in the New York Foundling Asylum, that large doses of this agent given early, will sometimes cause pneumonitis to abort, or will moderate it so that its subsequent course is milder. But quinia does not appear to exert any notable controlling effect either on the fever or gravity of pleuritis. Nevertheless, I have often employed it, especially in secondary pleurisies, with or without digitalis, and it probably does some good as a tonic. The salts of quinia, as ordinarily given in solution to young children, are very apt to be vomited. When vomited, a soluble salt, as the bisulphate, may be given as a suppository, or Squibb's oleate of quinia may be employed by inunction. I should, however, add that, though I have used inunctions of the oleate in pleuritis during the last year, ten grains of the alkaloid at a time, I have not seen any marked beneficial effect. To meet the second indication in the treatment of the first stage, namely, to relieve the pain and restlessness, and to diminish the cough, so that there is less friction of the pleural surfaces, our chief reliance must be on hyoscyamus or one of the opiate preparations. The following formulæ will be found useful.

For a child of one year:

℞ Tinct. opii deodorat	gtt. xx.
Tinct. digitalis	gtt. xvi.
Syr. pruni Virginian	℥ i.
Aquæ	℥ iss.

Misce. Dose: one teaspoonful (one drachm) every three hours. The tincture of hyoscyamus may be employed in place of the opiate in double the dose.

For a child of three years:

Tinc. ipecac. comp.,	
(Squibb's liquid Dover's powder)	
Tinct. digitalis	āā gtt. xxxij.
Syr. pruni Virginian	℥ ij.

Misce. Dose: one teaspoonful every two or three hours.

For a robust child of eight years with primary pleuritis:

℞ Morph. sulphat....................gr. i.
Tinc. rad. aconit.... ....gtt. xx.
Syr. pruni Virginian...............℥ iiss.

Misce. Dose: one teaspoonful every three hours.

The diet in the first stage should consist of milk and farinaceous food, given liberally. The meat-teas or the expressed juice of meat may be added, and in secondary pleurisies, as after scarlet fever, it is often proper to give a moderate amount of alcoholic stimulant from the first.

Second Stage.—Measures employed in the first stage have been designed to diminish the inflammation and relieve suffering. The duty of the physician, in the treatment of the second stage, is chiefly to aid in the removal of the inflammatory product, and prevent, so far as possible, its further formation. If this be sero-fibrinous, and its quantity be small, so as to fill only the lower portion of the cavity, little aid may be needed from therapeutics; but a larger effusion, compressing the lung and displacing the heart, requires medicinal, and often surgical measures. The recommendation of Niemeyer, that the patient's food contain little liquid, and that his drinks be restricted, as a means of increasing the absorption from the pleural surface, is not applicable to young children, whose diet must of necessity be largely liquid, and that of infants chiefly milk.

Attempts to stimulate the absorbents by external treatment of the chest are of doubtful efficacy, whether by the application of the so-called small flying-blisters, the iodine ointment or tincture, or a stimulating liniment. The common practice of treating glandular swellings by iodine applications suggests their use for pleuritic effusions, and of the agents employed locally to hasten absorption they are probably the best, but they should not be used so often or in such quantity as to cause pain or restlessness from their irritating effect.

It is an established principle in therapeutics that the removal of a serous liquid in either of the larger cavities of the body is hastened by such remedies as produce an abundant liquid secretion or transudation from any of the organs or surfaces. Hence in the treatment of pleuritic effusions, those medicines which act on the skin causing diaphoresis, upon the intestines causing watery stools, and upon the kidneys causing diuresis, are at once suggested as most likely to be efficacious. But sudorifics, though useful for dropsies having a renal origin, have not been much used of late years for the removal of exudations in the pleural cavity, experience having shown that they are inadequate for this purpose. Recently, however, the discovery of a very active agent of this class, jaborandi, has revived, in a measure, the sudorific treatment of the second stage, so that in the National Dispensatory of Stillé and Maisch this diaphoretic is one of the recommended remedies. Having witnessed the effect of jaborandi in various diseases, I am persuaded that the risk attending its use for pleuritic effusions more than counterbalances any good result which might accrue. The heart, crippled in its action by the pressure of the liquid, badly tolerates agents of a depressing nature, and there is little doubt that jaborandi exerts a decidedly weakening effect on this organ.

Again, the fact that sero-fibrinous exudations have been known to diminish rapidly during attacks of diarrhea suggests the use of purgatives; but, although an open state of the bowels, as two or three daily stools, aids absorption, free purgation is badly borne by young or feeble children, as it reduces the strength, and, therefore, like the use of jaborandi, is not to be recommended as a therapeutic measure. Moreover, there is not the need of employing severe or exhausting medicines for the removal of the liquid, which may have existed in former times, since we are able to accomplish this quickly, easily, and safely by the excellent aspirating instruments now in common use.

Diuretics, on the other hand, are apparently more useful, while they are less exhausting than sudorifics or cathartics. Digitalis, combined with the citrate or acetate of potassium, has stood the test of experience, and is now more widely used than any other agent of this class. Being both a diuretic and heart tonic, it possesses properties which render it especially serviceable in the treatment of pleuritic effusions. The following is a useful prescription for a child of five years:

℞ Potassii acetatis............................ ʒ ij.
Infus. digitalis................................ ℥ iij.

Misce. Give one teaspoonful every three hours.

It is a matter of observation that absorption occurs more rapidly, and a sero-fibrinous is less likely to become a purulent effusion, if the bodily condition be good. Hence tonics, especially the bitter vegetables, are sometimes useful, and a diuretic in combination with a tonic, as the acetate of potassium in decoction of cinchona, may often be prescribed with advantage.

Still, however judicious the treatment, hygienic and medicinal, many cases require surgical interference, and the number of such is certainly larger in the city than in the country, and in the tenement-houses than in the better walks of life, since the cachexia so common in city children increases the liability to purulent exudations.

Thoracentesis.—The indications for the operation are the following:

1st. Dyspnea due to the presence of the liquid, whether it be sero-fibrinous, purulent, or hemorrhagic. Usually when dyspnea occurs, the pleural cavity is full, but if there be parenchymatous disease of either lung, a moderate quantity of liquid may cause such embarrassment of respiration that thoracentesis is indicated.

2d. A flat percussion sound over the entire affected side, with displacement of the heart, even if there be no present dyspnea, is also an indication for the operation, for dyspnea might occur suddenly with other alarming symptoms between the visits of the physician. Moreover, experience has shown that absorption from a distended pleural cavity is very tardy, in consequence of compression of the absorbents, whereas, if a portion of the liquid be removed, absorption of the remainder is more rapid. The patient with full pleural cavity and lung totally compressed lies on the affected side, and is apt to feel uncomfortable in any other position, and the withdrawal of a portion of the liquid, as for example, one-half, the operation being discontinued when the patient begins to cough or evince distress, produces no ill-effect and increases the comfort.

3d. A moderate effusion, without material decrease in quantity after some weeks of observation, also indicates the need of surgical interference, since long compression of a lung involves risks. There is danger that catarrhal ending in cheesy pneumonia and tubercles may occur in a lung whose function is long suspended; besides, the longer compression has existed, the more tardy, difficult, and incomplete will be the inflation when the liquid is removed, on account of the altered state of the alveoli, and the presence of fibrinous bands over the lung. Thus, in a case recently under observation, only partial inflation of the lung occurred, after letting out the liquid, so that the ribs and shoulder on the affected side are permanently depressed, and unequivocal symptoms of tuberculosis are now present.

4th. If the inflammation extend to the pericardium, so as to cripple the heart's action, or if there be any serious pre-existing heart-disease, the liquid, even in moderate quantity, may, by pressure, so embarrass and retard the heart's action that its cavities are not properly filled, so that passive congestion of certain organs, and dangerous anemia of others, especially of the brain, may result. Under such circumstances, an early performance of thoracentesis is indicated.

5th. *Empyema.*—The presence of pus in the pleural cavity affords in itself, in a large proportion of cases, sufficient indication of the need of thoracentesis. In recent cases, with only moderate constitutional disturbance and embarrassment of respiration, if we ascertain by the hypodermic syringe that the liquid is only slightly clouded by leucocytes, surgical interference may be postponed, while the acute inflammation is treated. Thus, in case of an infant of two months, thin pus was withdrawn on the fourth day of acute pleuritis, and, although thoracentesis was early performed, it appeared probable, from the subsequent course of the case, that it would have been as well had the operation been deferred. If spontaneous evacuations of pus have occurred through one of the intercostal spaces, producing a fistula, from which there is a daily oozing, or if it be probable, from the symptoms and signs, that pus is escaping from the pleural cavity into a bronchial tube, and is being gradually expectorated—a mode of cure which, as I have elsewhere stated, is not infrequent in children—thoracentesis may be deferred. In the case of an infant, aged six months, recently under treatment for empyema of the left side, we removed four ounces of pus, and washed out the pleural cavity. The opening having closed, and the physical signs indicating the re-accumulation of a considerable quantity of liquid, we were preparing for a second operation, when the parents and nurse called our attention to the fact that there were occasional severe attacks of coughing, during which the breath presented a very decidedly purulent odor. Although there was no external expectoration, as the sputum was swallowed, thoracentesis was postponed, and the result justified the decision, for the patient gradually convalesced. Except under circumstances like the above, empyema, when clearly diagnosticated by the employment of the hypodermic syringe, should be promptly treated by evacuation of the pus.

Instrument to be Used, and Mode of Operating.—Ingenious instruments for tapping the chest have been invented by Dr. Chadbourne, of the New York Foundling Asylum; Dr. A. M. Phelps, of Chateaugay, Franklin Co., N. Y.; and others, which, by India-rubber packing, totally exclude air, while the operation is performed with facility and little pain. That devised by Dr. Chadbourne has a canula with two arms, one for attachment, by means of tubing, to the exhausting receiver, and the other is designed to facilitate irrigation of the pleural cavity.

Phelps' apparatus has a third tube, entering the bottle through the stopple, and a glass tube passes from the stopple to nearly the bottom of the bottle. With this apparatus, by reversing the movement of the syringe, the liquid can be withdrawn from the chest, the bottle emptied of it, the water used for irrigation be conveyed into the bottle, from the bottle to the chest, and back into the bottle, without changing the position of the bottle or removing the stopple. I would suggest the use of the trocar and canula instead of the sliding aspirator point which plays outside the canula, as an improvement in this instrument.

The instrument which I have been in the habit of employing is of simpler construction. The canula has about the size of the smallest needle of Dieulafoy's aspirator, the proper size, in my opinion, for thoracentesis, for both sero-fibrinous and purulent exudations. I greatly prefer the use of the exhausting-bottle rather than the exhausting pump without the bottle, as it is more convenient and produces greater suction, from its greater size. The canula is provided with an arm, which connects it by tubing with the exhausting bottle. Beyond this arm, the body of the canula, sufficiently expanded to contain India-rubber tubing, extends about one and one-half inches, and is provided with a stop-cock. Through this packing the trocar is introduced, and, after the puncture, it is withdrawn to the stop-cock, which is then turned to prevent the admission of air. Then the obturator is introduced in place of the trocar, so as to remove any obstruction which may enter the canula.

The tubing which extends from the arm of the canula to the bottle should be firm, with a somewhat larger bore than that of the canula, and its point of attachment to the bottle should also be provided with a stop-cock. A short glass tube introduced into this tubing near the canula is convenient for noticing the character of the fluid, which, if it be thick pus, may flow with difficulty, and not reach the bottle. A bottle of sufficient capacity to hold two quarts obviously produces more suction power than one of less size, and is, therefore, preferable for certain cases, and its sides should be marked to indicate ounces and drachms. The tube which connects the canula with the bottle enters through the stopple, and proceeding from the stopple is another tube similar to the first, to which the syringe is attached. The syringe has two points for attachment to the tube, and a double action in its interior, so that attached by one point, it exhausts the air from the bottle, and attached by the other point, it condenses air in the bottle. The stop-cock between the canula and the bottle should always be closed when the syringe is used, whether for exhausting or condensing. It is very important that this should be constantly borne in mind when working the syringe, or air may be thrown into the pleural cavity and much harm done.

Mode of Operating for Sero-fibrinous Exudations.—In the following remarks I shall state what I consider the best method of performing thoracentesis, having formed my opinion from the cases which I have witnessed and been able to follow, in the institutions and in family practice. A mode of treatment which may be safe and proper for the adult is not always the best for the child, and, as there are different opinions and different modes of procedure, and as many who are familiar with adult cases recommend similar treatment for the child to that which they have employed with success for the older and more robust cases, I shall advise the abandonment of certain measures which are in common use, and the substitution of others. The hypodermic syringe should be first introduced at the point where it is proposed to perform the operation, the needle being inserted about one inch, for I hold it unjustifiable to tap the chest without first ascertaining that there are no adhesions at the site selected for puncture, and at the same time ascertaining the character of the liquid. Incision of the skin with the knife and spraying the surface with ether are not required as preliminary treatment, since the puncture is quickly and easily performed with a small trocar, and with very little pain. The rule is established by many observations that the operation should be performed in or near the vertical line passing through the angle of the scapula, and between the eighth or ninth ribs, or one of the adjacent intercostal spaces. I have elsewhere stated that a point a little external to this line is preferable, as the lung is less likely to be injured. The instrument should obviously be inserted no farther than will be sufficient to reach the liquid, and, as from measurements which I have made, the thickness of the thoracic wall in rather fleshy children is about half an inch, penetration to the depth of one inch will ordinarily be sufficient to pass the fibrinous layer. We are apt to puncture more deeply than is necessary without some safeguard, and incur the risk of wounding the lung. India-rubber tubing may cover the instrument to within one inch of the end, or a cord may be tied snugly around the instrument at one inch from the tip. The sensation communicated to the fingers will, however, be the best guide to the careful operator as regards the exact depth to which the instrument should be carried. The trocar should now be withdrawn, the obturator introduced in its place, the air exhausted from the bottle, and then the stop-cock turned, to allow the liquid to escape.

It should flow slowly, as it probably will, through so small a canula, but the flow can be regulated by the stop-cock. The quantity to be removed depends upon the age and condition of the child, the size of the cavity, and the quantity of the liquid, but if the patient begin to cough or feel uncomfortable after the removal of one-half, or even one-third of the liquid, the canula should be withdrawn. The sensation of insufficient breath is no longer experienced, and the remaining liquid is progressively absorbed. This operation is one of the easiest in surgery, while, with the precautions mentioned above, no ill effect need be apprehended. One operation is, in most instances, all that is required, though, if need be, it can be repeated after some days, and it is very seldom that the lung does not fully expand to fill the chest if the operation be performed at the proper time.

Mode of Operating for Empyema.—It will aid in understanding this part of our subject to remember that all pleuritic exudations contain pus-cells, and that the only anatomical difference between sero-fibrinous exudations and empyema is in the proportion of these cells. There is, therefore, no fixed and definite boundary line between the two kinds of exudation. The term of empyema is, as all know, applied by common usage to the liquid when it contains so many leucocytes or pus-cells that a turbid appearance is imparted to it. Absorption is slow and difficult, or impossible, if the liquid contain a large amount of solid ingredients, namely, fibrin and pus-cells, while liquid containing only a small proportion of these constituents more readily enters the absorbents. In other words, thin pus may be absorbed and removed from the system by natural methods, or by the same instrument and operation which we have recomended for sero-fibrinous exudations, while a thick liquid adherent to the pleura, or sinking heavily in dependent portions of the cavity, disappears very slowly, losing by absorption only a little of the liquor puris, while the bulk of it cannot be absorbed, so that the only relief is by evacuation through an opening. Often in practice, after the acute symptoms of an empyema have in a measure abated, the physical signs indicate some diminution of the liquid in successive weeks, but further removal soon comes to a standstill, and the resources of surgery must be tried.

In my opinion, the same small trocar and canula should be used for tapping the chest of an empyemic child which we have recommended for sero-fibrinous exudation, and with the same precautions. If the liquid be thin and but slightly turbid, if it be but little removed from sero-fibrin in its character, it will flow through the canula, even if it be necessary to use the obturator often to remove obstructions. Having withdrawn all the liquid which will flow through the opening, unless severe coughing or some unpleasant symptom occur, which is an indication to discontinue the withdrawal, the instrument is removed, and the aperture may be closed with adhesive plaster. One operation may be sufficient to effect a cure, though convalescence in empyema is tardy under the most favorable circumstances. If we observe from week to week some return of appetite, more cheerfulness and sleep, easier breathing, and less frequent cough, the case can be left to hygienic management and restorative medicines. But if the improvement be only temporary, and, after some days' examination, show that the liquid has re-accumulated to nearly or quite its former quantity, and symptoms occur which indicate the need of surgical interference, the operation should be repeated. The use of so small an instrument produces no shock or prostation, and very little more pain than occurs from the hypodermic injection of a medicine.

And now I come to a subject in regard to which my observations have led me to differ from some whose opinions I respect. If the liquid be so thick, so heavily loaded with leucocytes that it do not pass through the canula, what shall be done? Shall a larger instrument be used, as one corresponding in size with the medium or even large needle of Dieulafoy's aspirator, or shall a free incision be made with the knife? The latter, I am convinced, is the proper alternative. The canula may serve as a director, and an incision should be made with the sharp-pointed bistoury along the upper border of the rib, sufficiently large to admit the blunt-pointed bistoury, and with this the incision should be extended to the distance of one-third to one-half inch, which will allow the pus to flow out freely. The opening should then be covered by oakum confined by long strips of adhesive plaster. Pus may or may not continue to flow into the oakum. If it do not, the opening will close, if left to itself, within two or three days. No tent or drainage-tube is employed, for reasons to be mentioned hereafter. The physician should return after twelve or twenty-four hours, not later, and should introduce through the opening the ordinary gum-elastic male catheter, warmed so as to be flexible, and strongly bent at its middle. The point should be directed to the bottom of the cavity. Perhaps the soft rubber catheter might be preferable, but I have never used it, being satisfied with the other. The catheter should be attached by tubing to the exhausting-syringe or bottle, and any pus in the depending portions of the cavity will be readily removed. I have generally, at this visit, removed from the bottom of the cavity two or three ounces, sometimes very thick, and such as would not readily flow from the opening. Every day or twice daily the operation should be repeated, which will, I think, more effectually remove the pus than washing out the cavity, and the opening cannot close. This operation detains the physician only a few moments. The catheter should be a No. X., and it is the best possible probe. By the close of the first week the opening becomes fistulous.

After each removal of the pus, long strips of adhesive plaster firmly applied over the ribs, from the sternal region downward and backward, facilitate approximation of the pleural surfaces and obliteration of the cavity. During convalescence, the patient, if old enough, should be directed to make full inspirations, which serve to expand the lungs.

That thoracentesis, so simple and important an operation, should have been known and practised by the ancients, even, it is said, by Hippocrates, and have fallen into disuse, till it was revived, in our own times, by Bowditch and Trousseau, seems remarkable. This was probably in part due to the bad instruments employed, and in part to the fact that in olden times the operation was performed in the anterior walls of the chest, where adhesions are very apt to be present. But there are certain accidents and unfavorable results of the operation which may be profitably considered, since, in my opinion, they can nearly always be avoided.

1st. The admission of air into the pleural cavity. This is unnecessary, and can be avoided; but those who have often witnessed the operation, as ordinarily performed, have remarked the fact that the admission of more or less air is common.

The entrance of a certain amount of air into a serous cavity, when the serous membrane is in its normal state, does not appear to be productive of harm with ordinary precautions, as regards temperature, etc., as in ovariotomy, in which air is admitted into the largest serous cavity in the body; and the moderate admission of air into the pleural cavity, when the pleura is healthy, does not, as a rule, produce any ill effect. Thus in the *London Lancet*, January 15th, 1831, the case is related of a man who suffered from heart disease, and was led to think that the pressure of a small amount air internally might be substituted for external pressure, which always gave relief. He was his own instrument maker and operator. He constructed a small tube about as slender as a common pin, to which a bladder was attached filled with air. The point of this was thrust through an intercostal space till it penetrated the pleural cavity, and air was made to enter by compressing the bladder. Relief always followed, and the patient's health improved. This treatment was continued two or three years. Dr. Lizars, who was present at the meeting of the Medical Society before which this case was related, stated that he had performed a similar operation on four or five patients affected with aneurisms, with some apparent benefit, and in no case with injury.

But the condition is very different if there be inflammatory products in the cavity. It is a fact known to all observers that animal liquids withdrawn from the circulation, and escaped from the vessels through injury or disease, remain in a closed cavity for a lengthened period without putrefactive change, as for example a clot of blood under the scalp or pericranium of a new-born infant; but if air be admitted, it becomes offensive within a few hours. The admission of air into the pleural cavity which contains exuded products undoubtedly promotes putrefactive changes in the latter, and the admission of even a small amount of air, containing, as it does, micro-organisms, which multiply rapidly in the animal fluids, and which appear to be active agents in putrefaction, suffices to convert sero-fibrin, or laudable pus, into an offensive, irritating, and poisonous liquid which increases the constitutional disturbance and the gravity of the disease.

Air in the pleural cavity, in proportion to its quantity, also tends to prevent the approximation to each other of the pleural surfaces and the obliteration of the cavity, which is required in all empyemic cases, since it is the mode of cure. Obviously the entrance of air does less harm if there be a fistulous opening and pus escapes as soon as it forms, than in a closed cavity, but it should, in all instances, be avoided, as never beneficial, and likely to do harm in the manner indicated. It is never a necessary accident of thoracentesis, since it can be avoided by the use of proper instruments provided with India-rubber packing and stop-cocks. There can be no doubt, also, that the point of the aspirator has often so pricked and torn the lung, that air has entered the cavity from this organ—a result avoided by judiciously using the trocar and canula.

2d. The lung is sometimes injured by the point of the hypodermic needle, employed for diagnosis. Cases are recorded in the hospitals of New York, of the breaking off and loss of the needle in the lung, from sudden and strong movement of this organ, as in coughing. The most severe injury is, however, commonly produced by the aspirator needle, and some very serious cases of this accident have occurred, in which the needle so pierced and tore the lung that not only air escaped from it, but also a considerable quantity of blood. It is obvious that the danger of injuring the lung is greater in recent than in chronic cases, and greater in sero-fibrinous than in purulent pleuritis, for a thickened, infiltrated, and firm pleura affords protection to the lung. It is very difficult to avoid injuring this organ if suction be made and the liquid be withdrawn with the unguarded point of the aspirator needle projecting into the chest. The removal of the liquid necessitates the impinging of the lung upon the point of the instrument even if it be held very obliquely, and in recent cases, when there is little thickening and infiltration of the pleura, the surface of this organ may be pricked or torn sufficiently to allow air to escape, and hemorrhage occur, when the operator who holds the needle can scarcely believe that such an accident were possible, so slight has been the sensation communicated to the fingers. Thus thoracentesis was performed on an infant of two months who had severe empyema of short duration. The instrument was held by myself obliquely, and it entered the pleural cavity only a short distance, and yet the lung was injured in three places, from which it was probable, from the signs and symptoms, that air had escaped. The specimen showing the injury was exhibited to the Pathological Society in 1879. Obviously, to prevent this injury, aspiration should be performed through the covered needle, as that of Phelps, or Potain's, or which I have recommended above and prefer, the trocar. I must here repeat what has been stated above, not to plunge the trocar to a greater depth than is needed, which is about one inch. The end of the canula may also injure the lung if it be pressed too deeply in, since it is necessarily rather sharp from its small size.

3d. *Washing out the pleural cavity.*—Since the aspirator has come into general use, it is the common practice to wash out the pleural cavity with carbolized water in the treatment of empyema. The proportion of carbolic acid to water commonly employed is about one part to eighty and at a temperature of 100°. From a discussion at the meeting of the New York Surgical Society, Oct. 12th, 1880, it appears that the use of carbolized water involves risk of carbolic acid poisoning in case the liquid be only partially removed after it is thrown into the pleural cavity, and Prof. Erskine Mason has for some time been in the habit of employing salicylic acid, one part, to one hundred of water in place of carbolic acid, as it possesses all the advantages with none of the possible risks of the latter. He states that it promptly deodorizes fetid pus even in the proportion of one part to two hundred. The use of carbolic acid would probably be entirely safe, if the liquid were removed immediately after washing the cavity, but for some reason this is not always possible. In case of an infant with empyema under treatment by Drs. Lockrow, Billington, and myself, after removing the pus by trocar and canula, attached to the exhausting bottle and once washing out the pleural cavity, the liquid was thrown in a second time, ℥ iij. into the left pleural cavity of an infant of five months, but not a drop of it could be removed. There was, however, no symptom which we could refer to the carbolic acid. In view of these facts, and the possible danger of carbolic acid poisoning, the use of salicylic acid appears to be preferable, at least for children who are less able to resist the action of poisonous agents than adults.

In this connection I must state my conviction that washing out the pleural cavity is unnecessary if empyema be treated as recommended above, and is apt to be injurious except in those cases in which the pus has undergone decomposition, is offensive to the smell, and therefore poisonous. If it be putrid, its immediate disinfection as well as removal from the pleural cavity appear to be clearly indicated, but in the common form of empyema, as the pus escapes through the opening which has been made, and the suppurative cavity becomes smaller, adhesions of the pulmonary and costal surfaces occur, which the injection of water is apt to tear up and destroy, and thus the obliteration of the cavity is retarded. Letting out the pus and approximation to each other of the pleural surfaces are the indications as regards surgical measures. Besides washing out the pleural cavity is not devoid of danger. Alarming symptoms may be developed unexpectedly and rapidly, even when the operation is slowly and cautiously performed. The infant of five months, with empyema, whose case I have alluded to, furnished a striking example of this. Four ounces of pus had been removed through a small canula from the left pleural cavity, and without removing the canula the cavity had been once washed out. It was proposed to repeat the washing, as the infant had thus far tolerated the operation, and was in an unusually favorable state for a case of empyema. The patient was in a semi-erect position, and three ounces of the water at a temperature of 100° had entered the cavity from the inverted bottle, when he began to cough, fretted, and became very restless. Immediately Dr. Lockrow applied the suction-point of the syringe to the tubing, and attempted to withdraw the liquid, but with no result. The patient's face assumed a deadly pallor, he frothed at the mouth, his lips were compressed, and breathing ceased. He was to all appearance dead. He was immediately placed upon the back by Dr. Billington, and by prompt resort to artificial respiration, the terrible suspense was soon ended by the gasps of the child, and the return in a few moments of consciousness and normal respiration. It seemed to me that this untoward accident was due to the flow of the water against the heart, so that it prevented full dilatation of its cavities, and consequently, diminished the flow of blood into the aorta and produced anemia of the brain. Leichtenstern says: "Various causes, which sometimes quite interrupt or impede the flow of blood to the left heart, such as a severe paroxysm of coughing, vomiting, lifting heavy burdens, may give rise to a suddenly fatal anemia of the left heart, and secondarily of the brain. The anemia of the lungs or brain found in many cases is only of secondary importance. It frequently happens after thoracentesis with aspiration that an anemia is produced in the partially distended lung, and this may lead to death by asphyxia. In sudden death during, or immediately, or a short time after thoracentesis by aspiration, the cause is anemia either of the heart or brain. In cases in which severe syncope and sudden death are observed during the irrigation of the pleural cavity, the cause is either direct mechanical concussion of the easily exhausted heart, by the stream of water thrown in, or shock." (*Deutsches Archiv für Klin. Med.*, Band IV., 4 Heft. *Lond. Med. Record*, Dec. 15th, 1880.)

4th. *The use of tent and drainage tube in empyema.*—With due regard for the opinions of the experienced surgeons who employ and recommend the tent and drainage tube, but whose observations have been largely upon adult cases of empyema, I cannot recommend their employment for children, unless perhaps the tent for a day or two after the incision; but the tent is not necessary if the catheter be daily introduced in the manner which I have advised. The drainage tube almost necessarily admits air during inspiration, but this is not the most serious objection to it. Cachectic children with poorly nourished tissues badly tolerate pressure upon an open wound by a hard substance. It is apt to cause ulceration and enlarge the opening, and continued pressure of the tube is apt to cause periostitis upon the edge of the rib and necrosis. Scrofulous and feeble children are very prone to both caries and necrosis from even slight pressure or bruises upon the surface of the bone—a result to which adults are much less liable. In a paper published by Mr. W. Thomas, in the *Birmingham Med. Rec.*, 1880, N. S., vol. iii., on the treatment of empyema by resection of one or more ribs, nine cases are detailed in three of which necrosis had occurred from pressure, it is stated, of drainage tubes, thus necessitating the removal of the diseased portion. During the last six months, a wasted empyemic infant was brought to one of the institutions of this city for treatment. After letting out the pus, a drainage tube was introduced and secured. At the next visit ulceration had so enlarged the opening that a large amount of air entered the chest with a whistling noise at each inspiration, and was expelled during expiration, and necrosis of the portion of the rib against which the tube pressed had also occurred. Air was finally excluded by covering the opening with a cloth smeared on each side with a concentrated solution of gutta-percha in chloroform, but the case after some days ended fatally. The escape of the drainage tube into the pleural cavity, which has occurred by breaking of the threads which secured it, is so rare an accident that it does not constitute an objection to the introduction of the tube; but aspiration daily or twice daily through the catheter so completely removes the pus that drainage is not required, and the risk of injury by the pressure of the tube is therefore avoided.

5th. I have witnessed, in a few instances, the burrowing of pus under the skin at the point where an incision had been made to let out the pus. This complication may lead to more or less ulceration or sloughing, and it greatly increases the danger of poisoning. But infiltration of pus will almost never occur if the incision be direct through the tissues and not with the skin pushed one side, so that it forms a covering or valve when it returns, as was once recommended in the books as a means of excluding air. But air does not enter the cavity through a direct opening if it be properly covered after the pus has escaped. Burrowing of pus and pyemic poisoning therefrom cannot then be regarded as an accident of the mode of operation which I have recommended.

Exsection of a portion of one or more ribs.—This operation has now been performed a considerable number of times in Europe and in this country, and, from the published accounts, certain cases have apparently recovered more rapidly in consequence. Thus in one case a fistulous opening, spontaneously established, had continued several months, with little diminution in the discharge, and very slow progress towards recovery, when by this operation, which produced a larger opening and a freer escape of pus and falling of the chest-wall, so as to obliterate the cavity, the patient rapidly convalesced.

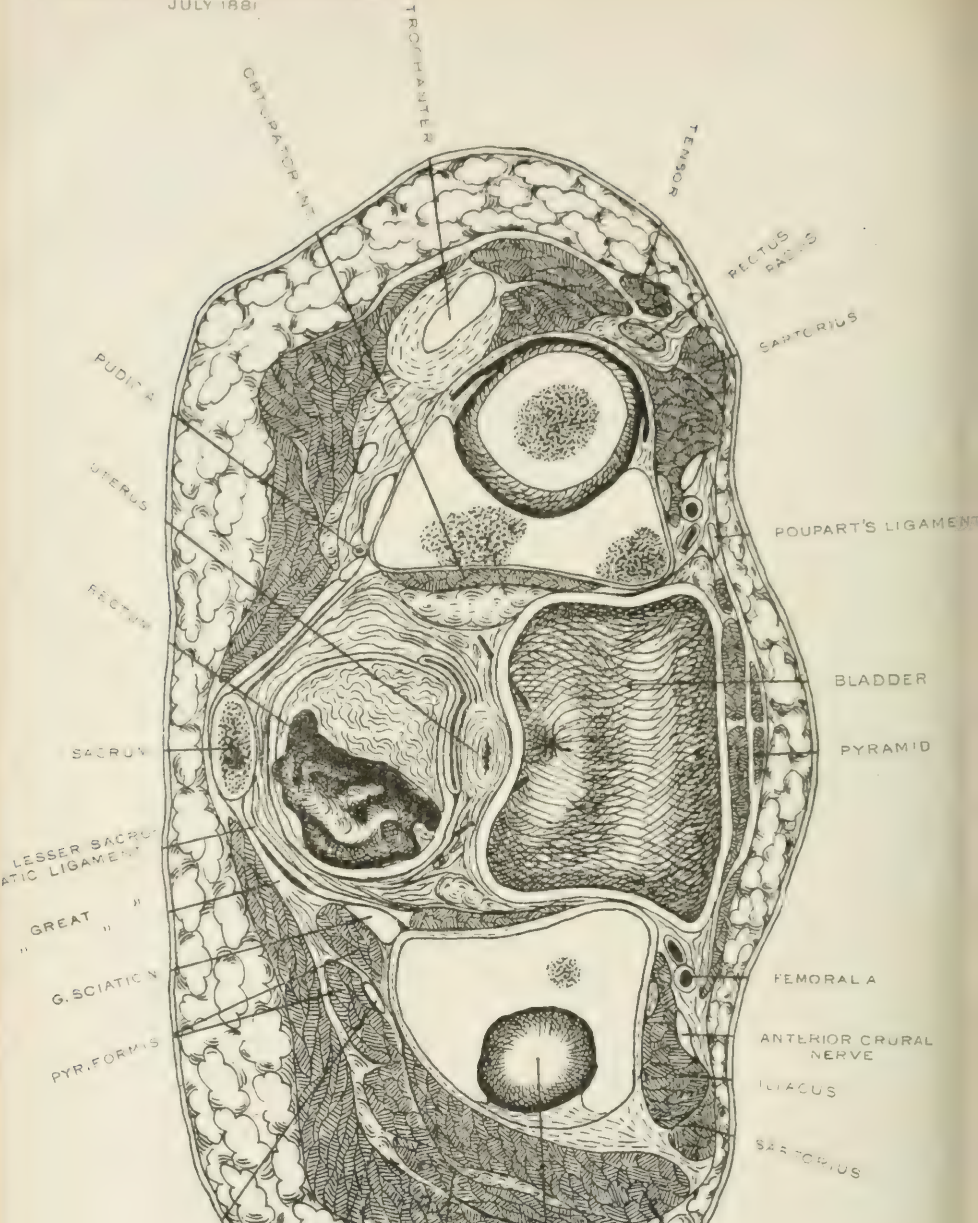
The alleged benefit from the exsection, which consists in the removal of an inch or a little more of one or more ribs, in or near the site for the usual performance of thoracentesis, is, that there is a readier escape of pus and the facility for washing out the pleural cavity is increased, and the thoracic wall and lung more readily approximated so as to produce obliteration of the pleural cavity. The greatest benefit is claimed for it in those cases in which the intercostal spaces are small and the ribs lie close to each other.

Without denying that certain cases have apparently been benefited by the operation, I must say that I have not yet met a case either in family or hospital practice, in which I could conscientiously recommend the operation except where necrosis had occurred from a periostitis produced by the irritating property of the pus, or the pressure of a drainage tube. The gum elastic catheter, introduced as recommended above, will pass through any intercostal space which I have yet observed, so as to allow free evacuation of the pus by suction, if it be not incapsulated by fibrinous bands, and allow also the free washing out of the pleural cavity if this be desired.

There are also serious objections to the exsection in case of a child. The system, exhausted by a suppurative inflammation, is in poor condition to tolerate an operation of any severity, and although we are directed to preserve as far as possible the periosteum from injury by the knife, and be careful not to wound the intercostal vessels, there are necessarily more or less shock and hemorrhage and consequent danger of hastening the death of the patient. In one of the cases, that of an infant, reported by an advocate of the operation, it seems to me that death was largely attributable to the exsection.

In order that exsection aid materially in the approximation of the lung and ribs it is necessary to remove the portions of two or more ribs, and the greater the operation the greater the risk. But what is needed is not depression of the ribs which may produce permanent deformity, but expansion of the lung, and this is promoted by the integrity and resiliency of the ribs. Therefore, in my opinion, a reaction will take place in the professional mind against this operation.

AND
DISEASES OF WOMEN & CHILDREN
JULY 1881



THOMAS DWIGHT, M. D.

FROZEN SECTION OF A CHILD.[1]

WITH PLATE AND DESCRIPTION.

BY

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The plane of this section is about 2.2 cm. below that of the one above. It passes 7 mm. above the symphysis of the pubis and strikes the last piece of the sacrum. It is higher on the right than on the left, but about level from before backwards. Hence it is evident that, in this case at least, the pelvis has reached its full inclination. One is struck by the length of the antero-posterior diameter compared with the transverse one, but sections by Braune, Pirogoff, and Rüdinger show very nearly the same proportions in similar sections of the adult pelvis. The prominence of the front of the abdomen, though caused in part by the distended bladder, is due even more to the accumulation of subcutaneous fat above the pubes. At least half the cavity is filled by the bladder, which was moderately distended with urine. The cut divided it very nearly evenly. It is not pointed above, as in infancy, but is irregularly globular and somewhat compressed from before backwards, which is characteristic of the female bladder, as is also, according to Luschka, the lateral symmetry which is seen in this instance. The lightly shaded part of the bladder shows the place at which it bulges forward over the pubes. The summit of the bladder is at the anterior border, where it extends upward between the intestines and the abdominal wall. The posterior wall of the bladder is thicker than the front one. The lowest point is at the opening of the urethra, which is very sudden, if the expression is allowable. There is the merest trace of a funnel-like narrowing, constituting the so-called neck of the bladder. This, if it exist at all, is, at all events, much less developed in the female than in the male. Straws have been passed through the terminations of the ureters which are not themselves visible, as they open in the posterior wall of the bladder. The *trigonum vesicæ* is a triangle formed by the openings of the ureters and the urethra, the mucous membrane covering it smooth instead of being in folds, as elsewhere. The wall below it is thickened by muscular fibres from the ureters, and a band running between their orifices may cause a ridge in the bladder. Accounts of the position of the trigonum do not agree. It is usually described as being at the lowest part of the bladder, its posterior angles being somewhat raised. Richet, however, states that the lowest part of the bladder is the "*bas fond*" situated behind the trigonum. The openings of the ureters in this case, however, are distinctly in the posterior wall. In another girl a little larger than this one, examined also by frozen sections, they have very nearly the same position. In a boy of about the same age, examined by opening the abdomen, the bladder was found nearly empty, and the trigonum was in the lower wall, though the ends of the ureters were higher than the urethra. There was a pouch formed by the posterior wall behind the ridge, at the base of the triangle. It seemed as if distention of the bladder would have raised the orifices of the ureters. In Braune's sagittal section of a young male (21 years), they are in the posterior wall. It is probable that this is their normal position in youth, and that with advancing years they gradually sink lower, especially in the male, in whom the base of the bladder is larger, and in whom the bladder is with more difficulty completely emptied from various causes, and in whom chiefly, on account of the enlarging prostate, a depression or pouch behind the trigonum is very frequently developed in the latter part of life. In the female, this does not occur. The peritoneum covering the bladder approaches the plane of this section very closely at the anterior angles of the organ, and behind it, where it is reflected over the uterus. In the median line, it does not come within 1.5 cm. of the pubes.

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[1] Advance sheets of a work shortly to appear on Frozen Sections of a Child. New York, Wm. Wood & Co.

This plate shows the lowest part of the body of the uterus. It is not over two centimetres in length, measured as well as circumstances permit along the posterior surface. It is less expanded at the upper portion than in the adult. It inclines forward, resting against the back of the bladder. The broad ligaments are seen on the under surface of the slice above running to the sides of the pelvis. The Fallopian tubes run much more upward than in the adult, so that the ovaries were seen in the preceding section. The folds of the broad ligament contain, even at this age, many veins which later form a series of very rich plexuses, which communicate both with the system of the iliac veins and also by the *plexus pampiniformis* and ovarian veins, with the vena cava on the right and the renal vein on the left. These veins may become largely dilated and varicose, forming a true varicocele in the female.[1] The diagnosis cannot be made with certainty, but it is very probable that this state would account for some of the obscure pains felt in the left side only at the menstrual period. The rectum is described elsewhere. Suffice it therefore to say that it is struck just as it is completing a curve with its convexity to the right. Below the fold, seen on the left, it expands to its greatest dimensions. This plate shows the lowest part of the peritoneal pouch between it and the uterus which extends here as in the adult behind the upper part of the vagina. The distance of this from the anus is in this subject approximatively 2.5 centimetres. According to Tillaux, in the adult male, this distance is 5 centimetres with an empty bladder and 6 centimetres for a full one. There may be a variation, however, of 2 centimetres. It is well known that when the bladder is distended a greater extent of it lies above the symphysis uncovered by peritoneum. Dr. Garson[2] has shown that a distended rectum materially changes the relations both of the bladder and of the peritoneum. His observations apply only to the male. He has shown that by distending the rectum the bladder may be pushed bodily upwards, carrying the peritoneum farther from the symphysis and raising it also between the bladder and rectum. This displacement of the bladder is due to stretching of the urethra chiefly in the prostatic and somewhat in the membranous portion.

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[1] Some years ago, while injecting the system of the vena cava inferior from the common iliac vein in a woman of at least middle age, I was surprised to see a very rich plexus of veins appear in the left broad ligament and send a branch across the uterus. I found that this had occurred by the passage of the injection from the left renal vein downward through the ovarian vein, which was as large as my little finger. Vide Boston Medical and Surgical Journal, Vol. 96. I subsequently found that this condition had been described in Richet's Anatomie Médico-Chirurgicale.

[2] Edinburgh Medical Journal, October, 1878.

The greater and the lesser sacro-sciatic ligaments are seen most distinctly on the right side. The latter lies inside of the former. With the aid of the muscles they supply the deficiency in the walls of the pelvis caused by the sciatic notch. The obturator internus is seen inside the pelvis in the chamber formed by the bone and the obturator fascia. A mass of fat occupies the ischio-rectal fossa between this and the pelvic fascia which passes to the sides of the bladder, vagina, and rectum. The left ischium is divided just at the spine to which the lesser ligament separating the two foramina is attached. The pudic artery and nerve (the latter drawn rather large) are seen as they turn round it. The glutei muscles are shown most clearly on the right. On the left the top of the great trochanter appears. Its position shows that the leg had rolled outwards as the body lay on its back to be frozen. The pyriformis in two parts is seen on the right. The great sciatic nerve, which leaves the pelvis below it, appears in front of it. On the left, where the plane is lower, this nerve has already made its way outwards, so as to lie behind the ischium. The lower branch of the great or superior gluteal nerve is seen on both sides. The main trunk leaves the pelvis above the pyriformis; it then divides into two branches, of which the lower may be seen more distinctly on the right side tending towards the space between the gluteus medius and minimus.

The right hip-joint is opened so high up that but a very small piece is taken from the head of the femur. Curiously enough this plate shows the three centres of ossification of the acetabulum; that of the ilium, which is the highest on the right, those of the pubes and ischium on the left. The socket is not thoroughly solidified till the seventeenth or eighteenth year.

A LECTURE ON KNOCK-KNEE AND BOWLEGS.

BY

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(With four woodcuts.)

THE conditions which I propose to discuss are interesting in many ways, and as the principles involved in their mechanical treatment are so nearly identical, I have thought it best to include them in one article.

The condition known as knock-knee or genu valgum is one that is well known to all. Like club-foot and other strictly-speaking painless deformities it is easily diagnosticated, and I need not stop to describe the signs by which we recognize a well-marked case of this malposition. It, as well as bowlegs or genu varum, has been, until quite recently, very much neglected by surgeons, for it is not many years ago that this class of cases were almost invariably referred by the medical profession to the instrument maker, who seemed to rest content with placing the deformed members in the most cumbersome and not infrequently the most expensive apparatus attainable.

But the recent progress made in the study of the causes and pathology of chronic deformities, and the great interest shown by general as well as by special surgeons in the scientific means of relieving them, and more than all the evident disposition on the part of the medical profession to realize that such conditions as they refuse to reach scientifically become sooner or later the legitimate prey of charlatans, have brought about a much different state of affairs. These statements are particularly sustained by the attention which the conditions under consideration are now receiving from surgeons of both hemispheres, and the abundant literature which exists upon the subject of their treatment. It would seem as though the matter of operative treatment was at present very much overdone, while the questions of cause and ultimate results have not received the attention they demand.

The temptation to accomplish the brilliant in chronic surgery is very enticing. We certainly are not going too far when we remark that no surgical operation can be accepted by the medical profession, however brilliant the *immediate* results may be, until sufficient time has elapsed to test its *ultimate* results. See for instance the incorrect impressions produced not many years since by the excellent results said to follow excision of the hip-joint. This is only one illustration of the bad practice of prematurely publishing results, the greater part of which are imaginary, or, at best, only temporary. In orthopedic surgery especially, which represents surgery of the most chronic type, we frequently study symptoms from month to month, or even from year to year, while in acute surgery we watch from hour to hour or from day to day. What seems to be a good result in chronic surgery to-day may be a very bad one in six months or a year, or even in ten years. We must not ignore these facts in considering the results obtained by methods of treatment which are as yet only experimental as applied to genu valgum and genu varum. And this should be a guide in considering methods of treatment which have not stood the test of years in orthopedic surgery. Never expect to accomplish in chronic surgery the rapid effects which are obtained in acute surgery. In acute surgery the result, recovery or death, occurs soon. In chronic surgery, and in orthopedic surgery especially, I do not hesitate to say that more deaths are produced by meddlesome interference with the knife or otherwise than by the disease itself. Conservatism in orthopedic surgery, experience teaches me, is absolutely necessary. Operative surgery in orthopedic practice is, or should be, almost wholly unnecessary. Even tenotomy may be avoided in the treatment of club-foot, and in some conditions where contracted muscles exist, such, for example, as are found in chronic joint disease, we find that ether removes the contractions. The conditions which require the knife in orthopedic surgery are rare. They are, as a class, confirmed deformities which have been either maltreated or neglected. If students were taught in our colleges how to recognize the earliest stage of progressive deformities of all types, this necessity would be further removed. And I have made it my rule, and it is a good one, never to use a knife to remove deformity when I can avoid it. We have no right to say: I can accomplish the *removal of the deformity* quicker by its use. The question we must ask ourselves and answer candidly is: Will the ultimate usefulness of the member or members be greater if I remove the deformity quickly and merely save time thereby? We have no right as conscientious surgeons to think of time or effort in orthopedic practice. We should be willing to spend all the time necessary and to use all the effort required to obtain the best ultimate result. Fortunately there are quite a number of operative procedures in orthopedic practice which do not imperil life, and in these cases I doubt not there will always be some difference of opinion as to whether it is best to interfere and hasten the reduction of the deformity by cutting. But there are other conditions where what may be called capital operations are performed in cases where the result, I am very sure, would be better if nature were simply assisted. Here there can be no doubt, it seems to me. My own experience leads to only one conclusion in this connection, and that is, that we can secure in all but the very exceptional cases much better results by imitating nature and using gentle rather than forcible means. In the painless but progressive deformities of the limbs which are accessible to operative surgery, such as the conditions now under consideration, the cases are rare, in my experience, that need the knife; still, as from neglect or bad treatment the condition may become so confirmed as to require operative measures, it becomes our duty to be prepared to operate, after the risks of operation have been considered by all who are interested in the result. And even then my experience justifies me in stating that in all but the exceptional cases the cutting or other forcible measures should always be delayed until the conservative plan had been tried and its failure to meet the indications has been demonstrated.

The natural inclination of each femur is toward the median antero-posterior plane of the body. Each bone forms with the perpendicular an angle of 15°. The plane of the knee-joint is such that it adapts itself to the maintenance of the erect posture, and this plane is mainly secured by a difference in the condyles of the femur. If we place the femur perpendicularly before us, we see at once the difference between the condyles, the inner being, according to Holden, one-half inch lower than the outer in the adult. On the other hand, if we examine the articulating surface of the head of the tibia, we find that its general horizontal plane is at right angles with the vertical axis of the shaft. So that, while the direction of the femur is oblique, the principal modification required to insure perfect adaption is made at the condyloid surface.

In the condition known as knock-knee, there is always some change affecting the condyloid plane which results in an altered relation of the tibia to the femur. The bones join each other at the knee-joint, and the articulation is practically a double one, that is, there are two condyles articulating with two separate surfaces on the head of the tibia. Any process which results in an atrophy or a hypertrophy of either of the condyles or produces a deepening of one of the surfaces with which they articulate, must change the relation of the bones to each other and produce a lateral deformity. And if there should exist an hypertrophy of the outer condyle or a deepening of the inner facet on the head of the tibia, the astragalar end of the tibia would be thrown toward the median antero-posterior plane of the body, producing an angular sort of bowleg or the reverse of knock-knee. Or, if there were an atrophy of the inner condyle, or a hypertrophy at the outer facet, the result would be the same. On the other hand, if there were hypertrophy of the inner condyle or atrophy of the outer condyle, or atrophy of the outer facet, or hypertrophy of the inner, we would have the position known as knock-knee. In addition to this, we must add abnormal conditions of the shaft of the femur above and the tibia below. For, if the normal direction of either bone is lost laterally, a condition of genu valgum or genu varum would ensue as a matter of course. But in knock-knee proper the essential changes take place in or near the epiphysis, with little or no change in the shaft of the bones. And we would make this distinction between the conditions which we are considering:

1st. Cases involving a marked degree of curvature of the shaft of the bones above or below the knee-joint are recognized as bowlegs, with secondary malposition of the joint, but without any essential alteration of the transverse condyloid plane.

2d. Cases involving the joint itself primarily and producing secondary changes which alter the direction of these long bones, but without any marked curve, are almost invariably cases of knock-knee; for, while we have both genu varum and genu valgum, the former involves in all but the exceptional cases a *deformity* in the shaft of the bones only, while the changes seen in knock-knee are frequently unassociated with marked changes or curvature in the diaphysis; and still further, the changes in knock-knee, other than those found in the condyles, are almost always seen, not in the tibia below, but in the femur above; while, as is well known, in bowlegs we frequently have a curvature of the tibia alone, the removal of which curvature results in the restoration of the normal direction of the limb. There is one constant and pathognomonic feature of knock-knee, and that is, the internal condyle is always found to be comparatively larger than the external, or, as McEwen states it, "an alteration is found in the plane of the condyles," so that the whole internal condyle is larger and the external smaller, speaking comparatively. This prominence of the internal condyle may be due to an increase in size at the diaphysis of the femur, just above the epiphyseal line. In the majority of the cases I have seen, this prominence of the internal condyle, apparent or real, has been marked, and though, I have no doubt, cases present where the alteration of the condyloid plane may be partly due to an inward bending of the femur (McEwen claims that this is a very common factor), it is quite certain that a restoration of the condyloid plane removes all the essential features of the deformity. McEwen also states that there are cases where the deformity is due to an intrinsic lengthening of the internal condyle, and that there are usually two or three factors which enter into the formation of the knock-knee. We cannot avoid the conclusion, however, that these factors, whatever may be their apparent value, have their cause in a primary change, whatever it may be, which affects the process of nutrition at the femoral epiphysis, or in the shaft immediately above it.

I wish I could satisfactorily answer the query which here presents and say what is the cause of this disturbance of nutrition. Is it a process of malnutrition affecting the system generally, but finding its principal expression at the knee-joint? Can we make the generally accepted definition of rickets apply to all the cases that are found in these localized expressions of osseous deformity seen in knock-knee? If so, why is it so localized? For knock-knee frequently presents as a strictly speaking unilateral deformity, and affects only one bone or one articulation. Rickets is a constitutional disease, and is characterized by some conditions which are not always found in knock-knee. In many cases, also, there are, or have been no symptoms except the slowly progressive deformity. Rickets is a constitutional condition, which may be followed by various osseous deformities. But we cannot overlook, if we make careful inquiry into the history, the syptoms of the constitutional condition when it is found in these cases.

There is, certainly, something which remains to be explained regarding the etiology of knock-knee; a something which time and patient investigation only can develop. Why, for example, should we find that the epiphyseal changes, which are known to exist in joint-disease, produce such marked symptoms, muscular, neural, and otherwise, when in the atrophic or hypertrophic changes involving these same structures in knock-knee there should be no such symptoms? What peculiar process can there be affecting the nutrition of the epiphyses of a non-inflammatory character and having a local cause? What are the changes which produce either atrophy or hypertrophy in other parts of the body? If we apply the answers which must be made to these questions to the conditions found in the knee-joint in genu valgum, we are led far away from the ordinarily accepted definition of rachitis. And there are no greater changes found in knock-knee than are often seen in the many localized expressions of disturbed nerve-centres or localized disturbances of the vascular system. At any rate, there is something more than simple "malnutrition" in these cases. There is something beyond these purely objective signs which are found in and which accompany these crooked joints. What it is I do not know. If we recognize that these changes, whether inflammatory or trophic, are not always associated with rachitis, we have, I firmly believe, taken a step in the right direction.

Knock-knee is defined by McEwen as being a condition of the lower extremity in which the centre of gravity passes to the outside of the knee-joint. This is undoubtedly a description of the mechanical relation of the parts. But there is a condition where the line of gravity is thus displaced when the patient stands which does not exist when the patient lies down. We may have knock-knee due to ligamentous relaxation. I have seen many cases of this type produced in children by the careless application of traction through the unprotected knee-joint, in the mechanical treatment of hip-disease. But I never knew a case of this kind to develop the characteristic knock-knee with articular bony changes or to result in a rigid lateral deformity. If we were to look for a local cause for knock-knee, we would be likely to attribute it to a primary relaxation of the ligaments. For, when the ligaments are relaxed, the inward slant of the femur throws the knee-joint toward the antero-posterior mesial plane when the patient walks, and the weight of the body then falls on the outer condyle. If the epiphyses are in a normal condition, and trophic changes have not occurred, and there is no central or general cause at work to produce it, knock-knee is no more likely to develop in these cases than is a permanent lateral curvature of the spine from unequal length of the lower extremities. In the one case we find a malposition of the knee-joint, which is absent when the patient removes all weight from the joint, and in the other we find a symptomatic lateral curvature which also is wholly removed when the patient lies down. Ligamentous relaxation, *plus* the predisposing cause, whatever it may be, is very sure to result in true progressive genu valgum. Ligamentous weakness, *minus* the predisposing cause, corrects itself in time if simple protection be afforded. But do not confound the pseudo-form with true knock-knee. We should watch, and, if necessary, treat this ligamentous weakness of the knee, but not record it as a case of knock-knee and report a cure after three or four months' treatment. We can, therefore, divide knock-knee into two classes: first, true genu valgum, where there are actual changes in the transverse plane of the joint, with or without osseous curves above or below the articulation, and secondly, lateral malposition of the joint, due wholly to ligamentous relaxation, which malposition, owing to the direction of the femur, always presents a knock-knee in locomotion, but which is, as a rule, unassociated with any femoral or tibial changes. We will briefly consider these two conditions and point out the means of treatment in each class of cases.

In true genu valgum we are met with some problems in the way of treatment which demand much thought and careful consideration before we decide as to the best course to be pursued. If we see the deformity in the early stage, there should be no doubt about the means to be pursued or the result. But if the deformity has existed a long time, and there is a very considerable change in the articular surfaces, there is a doubt which can only be settled by years of future observation. Mechanically speaking we must attempt to accomplish in knock-knee just that which we attempt to avoid in the treatment of chronic joint disease, namely inter-articular pressure. We must make a fulcrum of the articular surface of the inner condyle in bringing the tibia into its normal position.

Why is it that we cannot reduce this lateral malposition easily in knock-knee? I have often asked myself this question. If the changes in the transverse plane are due solely to the cause assigned them, why can we not by simple manual pressure restore the limb to its normal position by creating a gap at the outer condyloid articulation? Is it due to a contracted state of the lateral ligaments from position or to retraction of the biceps or to both? If so, why not simply divide the resisting tissues and at once restore the limb and maintain it there? But division of these tissues does not suffice, and attempts in this direction in the hands of able men have not been successful. Are the changes which are discovered *post mortem* at the external glenoid cavity of the head of the tibia primary or secondary? There are problems in the etiology and pathology of knock-knee that have not been even touched yet, and while it is all very easy to say "it is nothing but rickets," I am sure that there is a something about these cases that rickets does not explain. But we have a lateral resistance to overcome, and be its cause what it may, and the question is, Shall we attempt to overcome it and trust to time and to nature to accomplish the rest, or shall we adopt some of the many operative procedures that are being tried in various parts of the world? Here again let me say, I do not think of operating until I have exhausted every known resource that mechanics give me, and that case will indeed be a confirmed one which does not yield to the mechanical means at our disposal. In the simpler cases it cannot fail. In the worst class of cases, if time and attention be given, it ought not to fail, unless the vulnerability of the superficial tissues is so great that the requisite pressure cannot be tolerated, even when applied in the manner I shall shortly describe. But first let me briefly allude to the various operative measures that have been recently introduced. The first is *redressment force*, an operation that consists of making a fulcrum of the internal condyle and the application of sufficient force to produce an *immediate* restoration of the crooked limb. It is, in my opinion, a very unsafe proceeding. It has produced death, and is very apt to be followed by serious inflammation and an unstable articulation. I cannot imagine a case which would justify its use. Another plan is Ogston's. It consists of a subcutaneous section with a saw of the prominent internal condyle, which, when separated, slips upward and allows of an immediate adjustment of the tibia in its normal position. But the joint is opened. The measure has been condemned by eminent men, and, like Delore's method, first mentioned, has produced death and unsatisfactory results. Reeve's method, a modified Ogston's operation, consists of little more than the substitution of a chisel for the saw. It is preferable to Ogston's, but presents many of its objectionable features, though if care be used the joint is not opened. Indeed all these and other operations which involve opening the joint, or the danger of doing injury to it, or a separation at the epiphyseal line, are, in my opinion, unjustifiable procedures, and they would still be so were there no immediate danger to life or joint, inasmuch as we do not know, and cannot, for years to come, estimate the effect of these bony epiphyseal sections or the *redressment force* upon the future nutrition of the epiphyses themselves and through them upon the development of the femur or tibia. We do not know as yet the ultimate result of these operations. The immediate results in many instances have proved satisfactory. If it should ultimately be demonstrated that there is no interference with nutrition causing an arrest of development, or no hypertrophy from the more active nutritive process brought about by the reparative action, we would have ample grounds upon which to judge of their merits. But there is another procedure which does not involve the joint. It is McEwen's operation. It is performed by making an incision on the inner side of the thigh, just above the condyles, and cutting through the bone with a chisel—the "supra-condyloid operation." This procedure possesses the merit, at least, of non-interference with either the joint or the epiphysis, though it is open to the objection that, while bringing the limb straight at once, it does so by carrying with it the unmodified and abnormal transverse plane. Still there can be no question, I think, about the choice of operations if one must operate. I should choose McEwen's at once as being the one least likely to be followed by embarrassing ultimate results.

There are other operations to which I need not call attention on this occasion; they are all more or less attended with open wounds, though they are called subcutaneous. Listerism has been relied upon by all these operators, though many have been disappointed by the appearance at times of suppuration and its attendant evils.

The method which I use is a simple one, and though its capabilities have never been thoroughly tested it has been attended with results already which warrant its extensive trial. As before remarked, the principle involved in its use is the concentration of inter-articular pressure upon the prominent internal condyle. If we cannot produce absorption at this point, we can at least make it the fulcrum by which we stretch the opposing tissue at the outer aspect of the articulation. The degree of force we can apply is very great. But we must not err and make the application of this force continuous. The fact that the superficial tissues will bear a greatly exaggerated pressure for a few seconds or minutes without harm in the mechanical treatment of such deformities as knock-knee, bowlegs, club-foot, etc., is of great service to us. I have often illustrated this fact in the application of forcible momentary traction in the treatment of club-foot. And I have also found that what was gained by this momentary exaggerated pressure was not lost by a few moments or even a few hours of rest. I apply the same principle to the mechanical treatment of knock-knee. And there are many conditions to which this same principle is applicable. The momentary toleration of severe pressure is recognized in acute surgery, and its value as applied to the reduction of chronic deformities is very great. It opens a large field and solves many problems which before were looked upon as being practically beyond solution. It brings the treatment of many deformities heretofore considered as incurable without the knife within the range of strictly-speaking mechanical therapeutics.

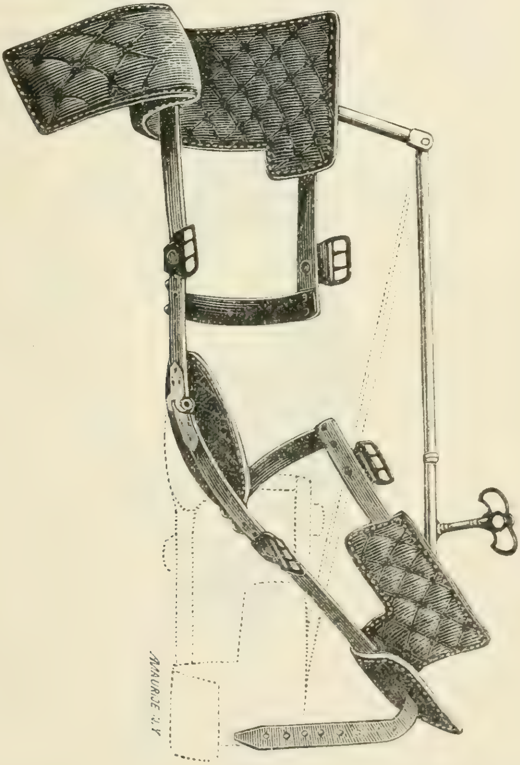

FIG. 1.

The instrument by which we apply this exaggerated force in knock-knee (Figs. 1 and 2) consists of two parts joined together by a lateral hinge at a point which corresponds with the most prominent part of the internal condyle. The upper or femoral part has two straight pieces of bar steel, held together above by the conventional band. The inner lateral bar terminates below in the upper part of the hinge. The outer bar is not continuous with the calf bar, but is made to terminate about $1\frac{1}{2}$

inches above the knee-joint, where another band joins it to the inner bar. The lower part is much the same as the upper, that is, the inner bar assists in forming the hinge on the inside

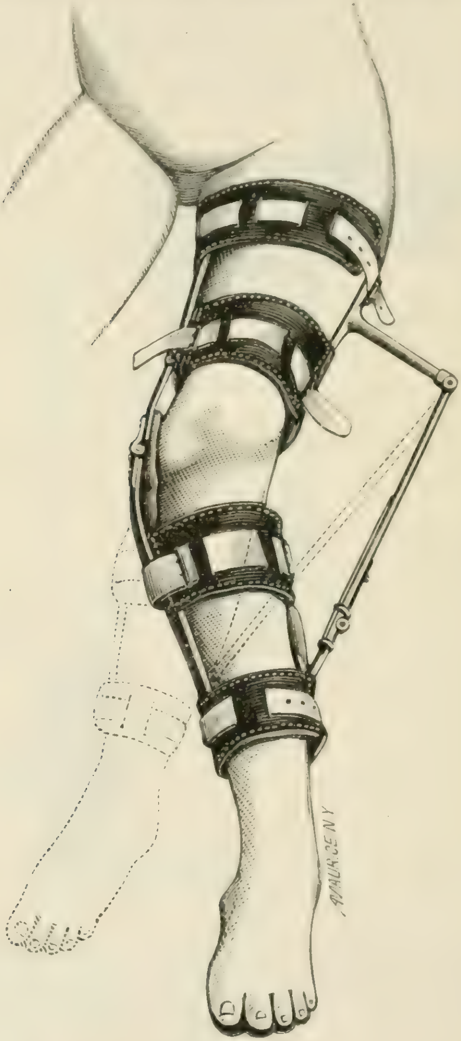

FIG. 2.

at the condyle, and the outer bar terminates 1½ inches below the joint. The lower bars are joined by two bands, one at the distal ends, the other at the termination of the outer bar just below the joint. On the outer bar of the thigh-piece is placed at a proper angle an extension rod which is inserted in the outer bar of the calf-piece near its lower end. We have thus practically a knee splint which acts in a purely lateral way and much the same as the ordinary knee splints found in the shops act to extend the knee-joint antero-posteriorly. The centre of motion is at the inner condyle, and the force which is applied acts directly to restore the lateral malposition. There is placed under this hinge over the inner condyle a soft pad, and in order to prevent the limb from rotating, a few strips of adhesive plaster are applied. When the instrument is adjusted, as in club foot or indeed as in other chronic deformity, it is made to fit by means of the lateral extension rod *the exact position of the deformity.* We now apply any desirable amount of pressure with the key. We see the limb restrained in every other direction pass toward the normal one, and we hold it after applying the exaggerated pressure for fifteen, thirty, or even sixty seconds. We then remove all force and instruct the mother or nurse in the application of the pressure. All severe pressure is removed at night. During the day this exaggerated force is applied every half-hour or hour. The only thing to be feared—and this has never happened—is a separation at the femoral or tibial epiphyseal line—a result which is sought for by many. But you need not apply force enough to incur any serious risk: you can in all but the very exceptional cases bring the limb into position after a few weeks. In these exceptional cases, use McEwen's supra-condyloid operation as a last resort only.

After the limb is straight, we must simply put on some effective retention splint with antero-posterior motion at the knee-joint. Time and nature will do the rest, and we will succeed in accomplishing an *ultimate* result which will, I doubt not, equal, if it does not excel that obtained by any of the operations to which I have referred. I have reason to believe that if all pressure is removed from the atrophied outer condyle, osseous deposit will occur. In one case which I treated in St. Luke's Hospital, this deposit did take place rapidly. We certainly would look for a better result than would follow the epiphyseal sections, and in young children especially, where a very considerable growth of the femur and tibia is yet to take place, the method I have described is much preferable, in my opinion, to any operation which involves the use of the knife, the saw, or the chisel. In adolescents the difficulties are increased as to mechanical treatment and are lessened so far as interference with growth is concerned. But with my present experience I should not hesitate to try the mechanical method in even the most confirmed adolescent cases.

We will now pass to a consideration of bowlegs or genu varum. In this condition we find an outward curvature of the femur or tibia or both. Speaking generally, it may be described as that condition where a line drawn from the head of the femur to the ankle passes inside of the knee-joint (McEwen). The amount of deformity will vary greatly in different cases. The curvature may be so slight as to be scarcely perceptible, or the femur above and the tibia below may form together the segment of a circle; but in all these cases the curvature of the bones is the patent factor, and the transverse plane of the joint is, in children at least, little affected. In many cases also, as before stated, the curvature is in the tibia alone, and it is very rarely the case that we find a unilateral deformity in bowlegs—another fact which shows the difference between this condition and knock-knee. Genu varum on one side and genu valgum on the other is sometimes observed, though not frequently. In the vast majority of cases, the curve is bilateral, with perhaps a slight femoral, but a very apparent tibial bending.

In seeking a cause for bow-legs, we must look for a condition which affects the diaphyses rather than the epiphyses, for one will frequently see cases of bowlegs without any apparent epiphyseal changes at the knee-joint, or if there is any change it affects the entire epiphysis, not its inner or outer half.

On the other hand, it certainly rarely happens that we find knock-knee without the unilateral condyloid changes that have been pointed out. And rickets or the condition which has been described as such, and which is accompanied by enlarged and otherwise altered epiphyses in other parts of the body, and especially at the distal ends of the radius and ulna, is almost always found to be associated with bowlegs. And so also are the other generally recognized signs of rachitis found in bowlegs. These signs are certainly seen less frequently in knock-knee. If the same general cause operates to produce both these conditions of genu varum and genu valgum, it certainly varies greatly in its manifestations. So great is this difference that I cannot doubt that a different etiology exists, or at least that something more than has yet been discovered is acting as a factor in the production of the true knock-knee.

True bowlegs is undoubtedly of rachitic origin, as before remarked, and the *deformity* lies in the diaphyses. But in bowlegs as well as in knock-knee there frequently exists a relaxation of the knee-joint ligaments which gives an apparent curve to the femur above and which makes the deformity appear much greater than it really is. Children thus affected will walk very badly when unsupported, owing to this ligamentous weakness, and as a consequence the knee-joint is thrown out much further than normal, from the true line of gravity in the act of walking. This in itself has a marked tendency to increase the leverage, if I may so speak, upon the curved tibia, and if it is softened the progress of the bowing outward is rapid. We met with many cases of bowlegs, however, where there is no abnormal lateral mobility at the knee-joint, and these are the cases which are most difficult to relieve. Sometimes the bones will remain soft for a long time, in others the bones will rapidly harden in their deformed position. We all know that bowlegs may recover spontaneously. I have seen several bad cases in children over five years old straighten without treatment. Still we cannot afford to take any risks and we have no means as yet by which we can decide which cases will recover without treatment. The greater number of cases which are due to ligamentous weakness alone undoubtedly recover spontaneously, unless the rachitic tibia exists. If there is ligamentous relaxation without any curve in the tibia whatever, we can afford to watch the case for a brief time without giving any mechanical support. But the abnormal lateral mobility of the joint *plus* the abnormal curve in the tibia demands active treatment at once.

The mechanical treatment for bowlegs which is described in works on surgery is entirely inadequate to meet the indications. It may briefly be described as the application of retention splints to the position which is already a deformed one, but which in effect is only a support to the limbs in their malposition. There is nothing which acts progressively to overcome the curvature itself, and much valuable time is lost in using them. All indeed which the ordinary "bowleg braces" accomplish is to aid in sustaining the weight of the body when the weight falls upon the curved bones. They usually do not accomplish this effectually unless they are modified almost daily, for the weight of the body in the majority of cases will so affect the lateral uprights and the horizontal bands that what is an accurate support to-day will become an inefficient one to-morrow. At night when the patient is lying down nothing is done, while at this time we can apply an efficient support which does not have to sustain the weight of the body before it affects the curvature.

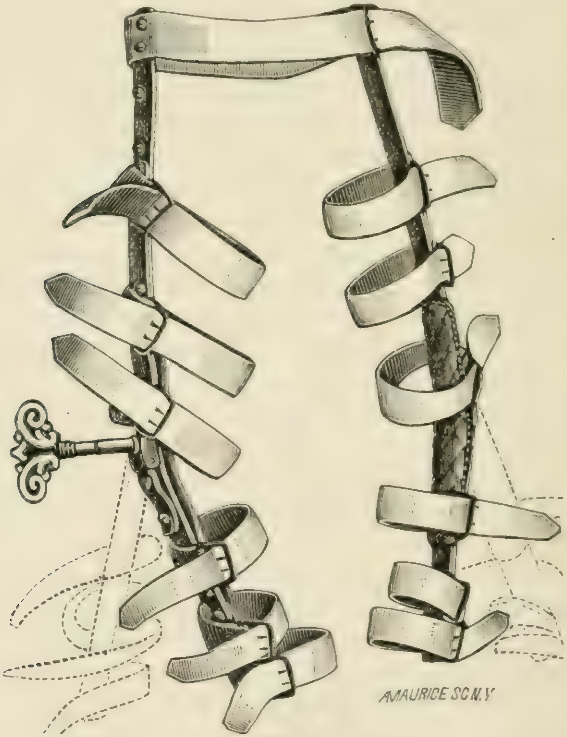
A. MAURICE SC. N.Y.

FIG. 3.

My plan is as follows:—During the night and at certain hours during the day I apply an instrument which consists of two lateral bars (see Figs. 3 and 4) passing from the trochanter major to the sole of the foot without any joint save one which has lateral movement, and this is introduced at the point of greatest convexity of the tibia. These lateral straight bars are joined together at the pelvis by a webbing band. They are securely, not tightly, bound to the limb at various points, also by webbing bands, and especially above and below the knee, and at several points below the lateral joint in the instrument. This lateral joint is constructed with a hinged

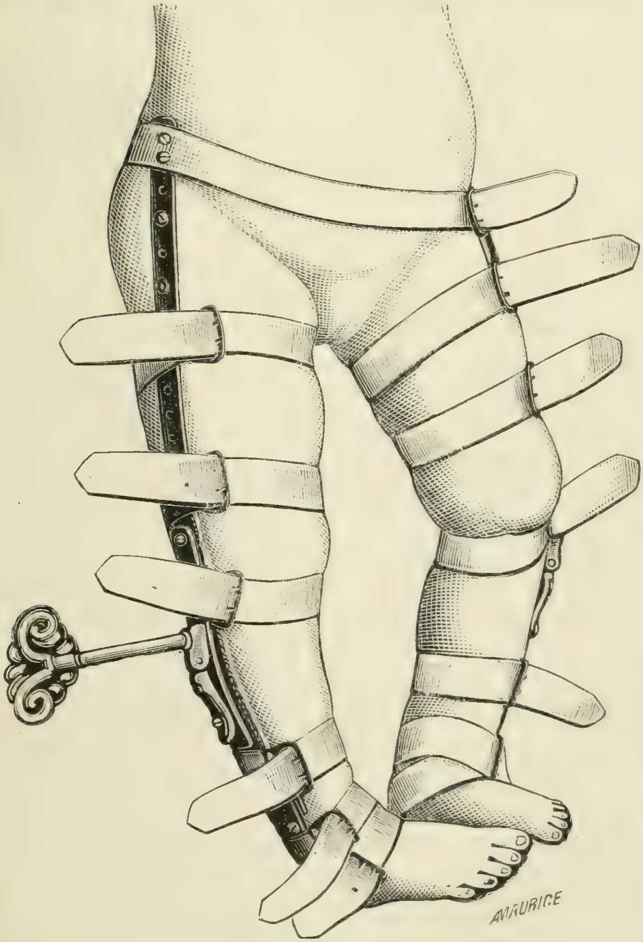

FIG. 4.

lever and screw, just as in my lateral club-foot shoe. In the latter we *push* the tarsus *in;* in the former we use it to *pull* the curved portion of the tibia *out*. The instrument is adjusted to *exactly fit the deformity*. We then fasten the webbing straps securely, and especially those which include the malleolus and the astragalus. You know there is no lateral movement at the ankle-joint, and we can therefore regard the astragalus and practically the os calcis as being part of the tibia. When the straps are fastened, we can apply with a key all the force required. We can keep up a moderate degree of pressure all night. In the morning, and if necessary during the day, we can again apply, at such intervals as may be deemed expedient, the principle of momentarily exaggerated pressure. These instruments are not annoying or irritating, and in one case in which the child was very nervous and timid, the mother applied them and exerted all the necessary pressure after the child was asleep without awakening the patient. After the night instruments are removed, the child is placed in a "day splint" which is made like the conventional bowleg retention splints. These day splints are worn whenever the patient walks, and the parents are instructed to bend the horizontal bars occasionally so that, when adjusted, the outer lateral bar fits the outline of the limb closely. In these, as indeed in all orthopedic cases, one must spend all the time necessary to instruct the parent or nurse in the detail of the work. We will have, of course, to see the patient occasionally and to make modifications as indicated. In the great majority of cases this treatment is all that is required to remove the deformity. Many cases that are now condemned to operative surgery can be cured by this method. Just how far it will answer in the older and more stubborn cases I do not know. I have treated thirteen cases, the oldest seven years, by this method, and all of them thus far with excellent results.

But operative surgery has lately included bowlegs in its list, and there are several procedures which are used by surgeons to accomplish the reduction of the deformity. Prominent among these are the section of the bones by saw or chisel, and fracture by instruments which have been devised for this purpose. There is no "condylotomy" for bowlegs. The operations are all directed toward the curved tibia and sometimes to the femur; I need not speak of these operations in detail. I will simply say that if I were called upon to use any method other than that I have described, I would use the osteoclast. I see no need of making a compound fracture when we have at hand the means of producing a simple one.

PYO-PNEUMOTHORAX FOLLOWING ACUTE PLEURO-PNEUMONIA IN A CHILD AGED THIRTEEN YEARS.

BY

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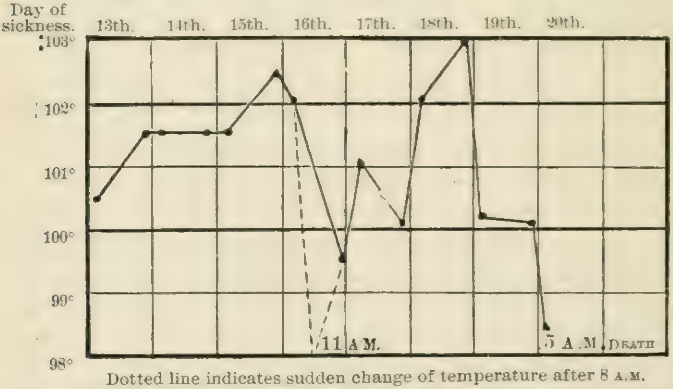
ON Sunday, January 25th, E. W., a school girl, æt. 13 years, healthy, with good family history, experienced some pain in left side of chest, but was not prevented thereby from attending church several times. The following afternoon this pain became very severe, and mustard plasters with other domestic remedies were employed with some relief. At 5 o'clock P.M., on the 27th, I first saw the case. The pulse was rapid, temperature 103° F. in axilla, cheeks of a purplish-red color, breathing rapid and suppressed, with expiratory moan. Pain very acute over almost the whole upper part of left lung anteriorly, aggravated by any movement, even of patient's arm. Great pain also complained of in left shoulder, especially when handled. There was tenderness on percussion over the whole upper part of lung. Auscultation revealed no friction murmur, nor could I succeed in detecting any râle. This was, no doubt, largely due to the involuntary suppression of respiration, but little movement of the left chest occurring. Percussion being so painful, it could not be employed to advantage. The very unusual severity of the pain and tenderness therefore prevented me from gaining much information as to the condition of the lung, by either auscultation or percussion. There was evidently considerable pleuritic inflammation, and that pneumonia also existed, the rational symptoms led me to believe. A peculiarity of the case was the entire absence of cough and expectoration.

Morphia, aconite, and counter-irritation were directed. The next morning—third day of the disease—the pain was less, temperature 104½°, upper lobe of left lung completely hepatized, as shown by dulness on percussion, bronchial respiration, and both loud and whispering bronchophony. General aspect of the case quite serious. Saw patient three times this day, the last visit being at 10 o'clock P.M. Under the influence of opiates the pain was now about subdued. A careful physical examination failed to reveal any evidence of pleuritic effusion.

After this date the thermometer—now used under the tongue—never again indicated a temperature as high as 104°. The fever came down very slowly, much more so than in other cases of pneumonia that I have treated, but it reached 100° on the 11th or 12th day of the disease. For about five days complete hepatization of the affected lobe existed, then the redux crepitation was heard, and resolution progressed rapidly, until no difference was perceived in the physical signs of the two lungs. Notwithstanding these evidences of improvement, the pulse remained quick and feeble, appetite poor, respiration disturbed, and sleep always restless. Little relief from these symptoms resulted from the treatment which had consisted chiefly of iodine to the chest, and ammonia, quinia, and alcoholics persistently. For one day all medication was discontinued, lest it was in some way interfering with convalescence. No change resulted. The most careful physical examinations, repeatedly made over the uncovered chest, failed to elicit any abnormal sign from the 11th to the 14th day of illness. Why then did the unpleasant symptoms above named still linger? In spite of these the patient insisted that she felt very well, and urged me at every visit to allow her to sit up, which request was never granted.



Dotted line indicates sudden change of temperature after 8 A.M.

On the 14th day pain returned to the left side, the fever increased, and a dry cough appeared. Up to this time no cough nor expectoration was present,[1] which I accounted for by the total absence of bronchitis. The only ràle heard at any time was the redux crepitation. On the morning of the 15th, pain was severe and pleuritic in character, great tenderness again over almost the whole upper lobe, temperature 101½°, and a limited quantity of fluid was found in left pleural sac. In the evening, fever 102½°, and at 8 o'clock A.M., of the 16th day of sickness, the mercury stood at 102° (see fever chart), the observations being made by a very intelligent young lady, who kindly performed this service for me twice daily throughout the disease. At 11 A.M. I found the temperature 98°, face pallid and cool, breath cool, pulse feeble and quick, respiration rapid and labored, pain and tenderness somewhat less, the patient having again resumed the use of opiates.

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[1] My own observations, and the positive statements of patient and attendants agree on this point.

Physical examination revealed the presence of an increased quantity of pleuritic effusion, as was indicated by a larger area of dulness on percussion, the line of dulness changing with the position of the patient; by fulness of intercostal spaces and displacement of the heart, the systolic impulse being seen and felt directly below the ensiform cartilage.

I did not at this time fully understand why a quantity of fluid producing dulness on percussion, reaching not higher than the angle of the scapula, should cause such fulness of the intercostal spaces, with so great cardiac displacement, the patient being in a semi-recumbent position. I thought it possible that adhesions above, the result of the early pleuritic inflammation, might be imprisoning the fluid below. This explanation was not satisfactory, however; since, if such an improbable condition existed, the line of dulness on change of patient's position should not show so much change as was actually observed. But I did not at once find a satisfactory explanation of these signs, and of another perceived a little later, viz., an entire absence of dulness over the heart, the patient being on her back. However, as the cardiac dulness is not always well marked in this position, the sign did not now strike me as being especially significant. It is worth remembering in this connection that the heart in children is more easily displaced than in adults.

The condition of the patient was now very alarming, and stimulants, which had never been discontinued, were given more freely. In the evening the temperature arose to 99½°, and the patient's appearance was altogether better. The pulse was fuller and stronger than for a week previous. The fever reached 103° on the 18th day, and all other signs and symptoms were about as before, except that I detected a well-marked amphoric note above the line of dulness posteriorly. This was distinctly heard the next day; and on the morning of the 20th day, on changing the patient from the diseased to the healthy side, at the same time auscultating the left lung, five or six drops of fluid were heard to fall, producing the metallic tinkle with startling clearness.

There was now certainly proof demonstrative of the presence of air in the left pleural cavity, viz., amphoric respiration, metallic tinkle, great cardiac displacement, marked dyspnea, increased resonance over the upper part of the lung, and even over the heart, bulging of the intercostal spaces, immobility of the left side of the chest.

The temperature was now 98½°, but no symptom present indicated any special danger of a speedy termination of the case. The pulse did not appear to have lost its strength, nor was the respiration notably more embarrassed than for two or three days previous. On being questioned, the patient said she "felt better all over;" but for the first time she manifested an indisposition to be examined carefully, saying she wished to sleep. Early in the morning she had with some assistance walked about thirty feet to a bed in another room, which I was told she had insisted on doing while her bed was being changed. In the evening I was hastily summoned and found the patient dying. She was at times unconscious, the pulse was feeble, face bathed with cold perspiration, and dyspnea was so extreme that the patient repeatedly begged to be quickly changed from one position to another, in the vain hope of getting away from her distress. The heart beat entirely on the right of the sternum. I could detect no increase in the amount of effusion. After a night of the greatest distress, during all of which time I was present, death occurred at 5 o'clock A.M. of the 21st day of the disease.

Remarks.—As in many other cases of pneumothorax, the termination was rather sudden, at least sooner than expected. Watson says: "It is surprising how long this state of things within the thorax may last, without any great declension of the patient's general health and strength, even when the disease is (as it mostly is) incurable;" and he cites a case which, after progressing with but little change for a long time, at last terminated suddenly in death. I may here remark that during the whole period of the patient's illness, there was never any delirium, dryness of tongue, or other symptom marking a typhoid state. The patient, except when suffering pain, was uniformly cheerful, and always gave a favorable account of her condition. Death occurred by apnea, not by asthenia. As an autopsy would have been very interesting and instructive in this case, I made every proper effort to secure one, but failed. In the absence of this, although I entertained no doubt whatever as to the correctness of the diagnosis, I made these *post-mortem* tests: 1. Gently but suddenly lifting the left shoulder, the noise of splashing fluid was distinctly heard by all present. 2. Turning the body on the healthy side, that the fluid in the pleura might gravitate away from the chest-walls, percussion gave a tympanitic sound. The lung was therefore not in contact with the parietes. Now I gently inserted a hypodermic needle between the ribs, when air began to escape in a distinctly audible current. 3. Without changing the position of the needle I carefully turned the body into the dorsal position, when fluid mingled with bubbles of air began to escape. The fluid was purulent in appearance, and the microscope demonstrated pus cells in abundance. The diagnosis then was correct, but not complete. The purulent character of the effusion was not certainly determined during life. There was never any chill, hectic or sweating, and the only reasons for suspecting the existence of pus, rather than serum, were the presence of air and the unusual severity and long duration of the pain. The latter, too, extended to the shoulder, which, according to some writers, is somewhat diagnostic of purulent effusions (?). Fraentzel says that the "unmistakable signs of a communication with the lung or bronchia" may be accepted as "certain evidence that the effusion is purulent or ichorous." (Ziemssen, Vol. iv., p. 675.)

There are several points of considerable interest in this case. I have never before seen a case of pneumonia passing through all its stages, even to complete resolution after hepatization, so far as physical signs indicated, with absolutely no cough and no expectoration, and with such entire absence of moist râles. These peculiarities were perhaps due, as already suggested, to the absence of bronchitis, which to a greater or less extent is present in almost every case of pneumonia. But the point of chief interest is the occurrence of pyo-pneumothorax. How did the air gain an entrance? What pathological condition existed previous to its entrance into the pleural sac?

This is only the third case of pneumothorax that I have seen. The first was under my care as Resident Physician in the Cincinnati Hospital, and the patient died soon after thoracentesis by Dr. Dawson, the operation having been done by request of Dr. Comegys. The cause in this case was the perforation of the pulmonary pleura by an empyema. Another case was seen in the Royal Infirmary in Edinburgh. Fluid as well as air was here present, but this condition had evidently come on gradually, produced no peculiarly distressing symptoms, and was discovered in the ordinary process of physical examination some days after the patient's admission. The lungs were tuberculous. These cases are illustrations of the two most common causes of pneumothorax, viz., the bursting of tubercular vomicæ into the pleural cavity, and the bursting of old empyemas into the lung. Other causes are, penetrating wounds of the chest, whether accidental or made for therapeutic purposes, laceration of the lung by a fractured rib, the perforation of the esophagus and pleura by a sharp-pointed substance that has been swallowed, violent contusions of the thorax with rupture or laceration of lung-tissue, the bursting of a dilated bronchial tube, or of a distended air-vesicle, as in emphysema, violent exertion, necessitating unusual inspiratory efforts. The medical journals, for example, have recently contained reports of cases following forced inspiration, resorted to for anesthetic purposes. An interesting case, perhaps of similar origin to the above, is given in Gairdner's Clinical Medicine. The pneumothorax came on suddenly, the patient, previously in good health, having been rowing. A sharp pain occurred, followed by great distention of one side of the thorax, and the accumulation of a limited quantity of fluid. There was no fever nor other symptom of a grave nature, the patient was never confined to bed, and finally apparently entirely recovered. This case was attributed to a pin-hole rupture of an air-vesicle, but, of course, the true pathological condition could not be accurately determined.

"As a mere curiosity, and as having no practical bearing," Barclay says, "it may be mentioned that air may be generated by decomposition of fluid," but Flint, with whom other recent writers agree, says, that "such cases, if they ever occur, must be extremely rare." From Ziemssen I quote the statistics collected by Saussier, showing the etiology of pneumothorax in 131 cases:

From pulmonary consumption, .	81 times.
" empyema, . . .	29 "
" gangrene, . . .	7 "
" pulmonary emphysema, . .	5 "
" pulmonary apoplexy, . .	3 "
" hydatids, ...	1 time.
" hematothorax, . .	1 "
" abscess in the lung, . .	1 "

From cancerous ulcer, . . 1 time.
" hepatic fistula communicating with lung . . . . 2 times.

Let us now return to the case whose history has been given and endeavor to determine its etiology. Of the causes here named, the only ones that need be at all considered in this connection are pulmonary gangrene, empyema, and pulmonary abscess. That the upper lobe of the lung was primarily affected, might direct our attention to acute phthisis, but this is at once excluded by the too acute character of the case, the absence of cough, expectoration, extreme prostration, sweating, emaciation, and of any involvement of the right lung, by the resolution of the infiltrated lobe, and by the previous good health of the patient, and the absence of any family history of phthisis.

Had gangrene existed, there would have probably been cough, expectoration, prostation with typhoid symptoms, and the peculiarly offensive fetor of the breath. None of these were present, nor were the air and fluid drawn from the thorax after death at all offensive, as they certainly would have been had a gangrene of the lung existed, even so circumscribed as to have been impossible of diagnosis during life.

Was there an *empyema* with perforation of the pulmonary pleura? I think not, and for the following reasons:

1st. No fluid could be discovered in the pleural cavity until the fifteenth day, this being after a return of pain and increase of fever, indicating a new attack of pleurisy. The only dulness prior to this time was over the upper lobe. I recognize the difficulty of diagnosing small effusions. Juergensen says the diagnosis " is very uncertain unless the effusion be considerable in amount," and could not himself make a positive diagnosis, unless, in the adult, the fluid reached " eleven to fourteen ounces, and in children, four to six ounces" (Ziemssen). The fluid found on the fifteenth day. was, according to my notes, only " a limited quantity," which became " an increased quantity " the next morning, the day perforation occurred. It is fair to infer, then, that the fluid was detected as soon as any considerable quantity made its appearance, and this did certainly not perforate the pleura the next day.

2d. Granting the possibility of the existence of a small effusion for some days, the probabilities are that this was serum and not pus. Empyema is almost always the result of a chronic pleurisy. Suppurative pleurisy, it is true, is by some authors recognized as a distinct variety of acute pleurisy, but Juergensen only echoes the common sentiment of the profession in saying that "an effusion which is entirely purulent from the start, if it ever does occur, is extremely rare." A quantity of effused fluid, so small as to remain undetected for ten or twelve days, even though purulent, would not be apt to perforate the pleura.

3d. It is not common to find an empyema of only two weeks' duration terminate in perforation. Fraentzel says that purulent effusions of *long standing* may cause necrosis of the pulmonary pleura (Ziemssen). So that, granting the possibility of an early effusion, and that this may have been purulent, and that there was a considerable increase on the fifteenth day, yet the acuteness of the case would prevent us from accepting this as a probable cause of the pneumothorax.

4th. Perforation of the lung by an empyema would be accompanied by great cough and purulent expectoration. Neither was present.

ABSTRACTS.

Prepared by J. FEWSMITH, JR., M.D., Newark, N. J.

1. Scherpf: Etiology and Symptomatology of Children's Insanity (*Jahrbch. f. Kindhlkde.*, XVI. B., 3 u. 4 H.).—DR. L. SCHERPF gives us a long and carefully written article on the above, with an exhaustive résumé of the literature of the subject. He takes 14 years to be the average time of puberty, and divides this period into two, the first ending at the beginning of the second dentition or at the 7th year. Schaffhausen has shown that in the first period the child's head grows in length, in the second in breadth. The psychoses of the two, of course, cannot always be exactly differentiated. No physician will to-day deny that insanity may occur during childhood. It is also not so rare as would seem from the reports of large institutions. Most cases do not reach these; they are treated at home, sometimes not recognized, often concealed. It is uncertain whether sex has any influence. Just at the period of puberty there are probably more cases among girls.

Just so sure as psychical activity depends on the organic nerve elements, just so surely are psychical diseases also somatic. It is therefore, as Maudsley says, not right to speak of moral causes in contradistinction to physical, for the former can only operate as they produce physical changes. In general, the causes may be divided into predisposing and exciting. They may, however, be considered in order as follows:

I. The greatest of all causes is INHERITANCE. No other etiological moment is of so much importance as this. Three principles in relation to it are now regarded as settled. 1st. Diseases of the mind have a genetic connection with diseases of the nerves. Almost all mental, nervous, and cerebral diseases are branches of a common species, of which any one may in the lower generation appear in another form. 2d. One generation may remain free from all disturbances and the next be affected (atavismus). 3d. The inherited disease does not remain stationary through generations, though examples are not rare where there has been inheritance of identically the same form of disease for several generations. Generally it goes according to the strength of the factors, progressively with converging factors, while it may decrease or be entirely lost with diverging ones. It is the first portion of this law of Le Grand du Saulle which explains the occurrence of insanity in children. In most cases, the insanity itself is not inherited, but only the tendency to it. We find neuropathic and psychopathic children who even in early childhood may be distinguished from healthy ones. They react on the slightest external influence, they early show a tendency to hallucinations, convulsions, etc., while sleeplessness, sudden starts, crying, etc., are common occurrences. Peculiar contradictions of character make them complete riddles—now too sympathetic, now devoid of feeling, at one time irritable, then devoid of all energy. The intelligence may develop normally, but more often it is irregular, inharmonious. As the child grows, plays with its comrades, and enters school these abnormalities become more marked. The slightest external influence may change this neuropathic condition to a psychosis. This may happen in three ways. Either early reflex activity affects the motor centres and epileptic or hysterical convulsions hasten the destruction of the psychical life, or the peculiar hyperesthetic condition of the whole nervous system leads gradually to a loss of the intellect by destruction of the power of control (hysterical or hypochondriacal insanity), or the inherited strength of brain is not able to withstand the demands of life and we have early dementia or idiocy. Beside the natural constitution of the parents we may mention as producing these results, temporary troubles or cares of the father, or more particularly the mother, and most of all *alcoholism* in either parent.

II. EDUCATION.—The author here goes into a long discussion on the evil ways in which children are brought up. They are often neglected by their parents and left to the care of nurses. The family life is not what it should be. Rough treatment may overthrow a delicate mind. In the schools, either the mental faculties are overtaxed or, for the sake of show, the bright scholars are pushed on and the backward so severely punished that through the feelings the mind is affected. Under this head the author has collected a number of very interesting cases, but it is a thing but too well known to all of us.

III. It is well known that TRAUMATIC CAUSES, injuries to the head, may cause psychical disturbances. These may occur before, during, or after birth. In the first class come the cases of intrauterine pressure from overlapping of the cranial bones. In the second we must attribute harm to the use of forceps, and to difficult and tedious labor. The author is forcible on the subject of forceps, saying he has seen cases of idiocy directly following it. Autopsies in such cases have shown cicatrices and wounds in the cerebral tissues. The third group includes the cases of injury to the head occurring in childhood. The psychoses dependent upon these causes are mostly based on some severe organic affection, meningitic and encephalitic processes, apoplexy, etc. The psychosis may follow directly upon this or it may be latent for years and then develop. Although children will come safely through injuries to the head which would in an adult produce fatal results, yet these are very apt afterward to be followed by psychical disturbances. There is also another class of traumatic cases which may be called reflex psychoses. A painful cicatrix, a blister on the foot, insect larvæ in the frontal sinus, disease of the inner ear, these have all been known to produce psychical disturbances which disappeared as soon as the causes were removed.

IV. In childhood long continued psychoses do not so often occur as the result of BODILY DISEASE as we should expect from the great tendency of even slight pathological affections to give rise to brain symptoms. Even a transient cerebral anemia will often cause most threatening psychical symptoms, such as would only be produced by organic changes of deep moment in an adult, but these symptoms rapidly pass over. Interesting cases are cited in point. Cerebral anemia is much more frequently the cause of psychical disturbance than cerebral hyperemia. Under this division comes the consideration of the neuroses, chorea and epilepsy. No one will deny now that these are to be classed with the cerebral diseases. These motor disturbances are equally with the psychical the evidences of the neuropathic constitution. Chorea is a disease of development, occurring generally in the second period of childhood. It is almost always followed by psychical disturbances, and often the intellectual sphere is greatly affected. The suggestion is made, as by Meyer and Maudsley, that the activity of the intellectual faculties is decreased or lost on account of the increased irritability and activity of the motor centres. Epilepsy begins generally with puberty. Its most frequent source is inheritance. Most cases of it show psychical defects. The form of insanity is carefully described, beginning with loss of memory, listlessness, want of feeling, etc., and in most cases ending in epileptic mania. It rarely occurs under five years of age, and in most cases still later. Hysteria and hypochondriasis are also causes of insanity in children. Many interesting cases of the latter are reported. The latter generally gives rise to a form of melancholia.

V. ACUTE FEBRILE DISEASES cause two forms of insanity, one due to hyperemia and the other to anemia of the brain. The first are usually of maniacal form and occur during the height of the disease. The latter are generally of depressive nature. In most cases of both forms the prognosis is not unfavorable.

VI. CONSTITUTIONAL AND CHRONIC DISEASES.—Cases of insanity from syphilis are unknown to the author. Tuberculosis may produce it by deficient nutrition of the nerve elements, as, of course, also by meningitis tuberculosa. Other chronic diseases may produce a form of melancholia due to deficient nutrition. To-day we do not regard the action of entozoa with the fear which our ancestors had for them. Cases of insanity produced by them are on record, but they have been cured by removing the cause.

VII. THE INFLUENCE OF SEXUAL DEVELOPMENT AND ONANISM.—The beginning of puberty is a period of important change, not only in the body, but also in the mind. Ideas take new directions, the romance and poetry of life begin. Melancholia, especially of religious form, is common at this time. After careful review of the matter, the author concludes that in most psychoses the onanism is not the cause but an accidental symptom of the constitutional disease, though in many cases it may increase the predisposition to insanity by its weakening effect and by the association of ideas produced by it. Krafft-Ebing classes the relation of the two phenomena in three divisions: either both onanism and psychoses are the product of the same neuropathic constitution and the former the exciting cause of the latter, or the onanism is caused by a psychopathic, irritable cerebral condition and is therefore a symptom of the psychosis, or when begun in healthy condition the onanism predisposes to the psychosis by its weakening effect and the ideas it awakens.

VIII. The tendency to IMITATION or mimicry is stronger during childhood than at any other period of life, and though many of the curious examples of it cannot be classed among the psychoses, yet there is undoubtedly danger that in children of a neuropathic constitution the abnormal development of this tendency may lead to real insanity. This has been especially noticeable in epidemic form. It shows the danger of bad example and association in the training of children.

IX. INTOXICATION.—Under this head the author finds cases recorded of insanity brought on by the use of stramonium, opium, belladonna, hyoscyamus, santonin, and chloral hydrate. Chronic alcoholism can hardly be found in childhood, but cases of psychical disturbance from abuse of alcohol are not very rare. Chronic alcoholism in the mother certainly predisposes to such trouble in the child.

In speaking of the SYMPTOMATOLOGY of the subject, the author goes into a very careful but long study of psychogenesis. At the risk of not making some of his points clear we must yet leave this out. His first point is that we can have no psychosis in the newly-born because we have no psyche. Even for some time after birth irritations of the central nervous system exhibit themselves through motor effects only, convulsive affections. From the moment of birth on the mind develops. As soon as the child learns to receive impressions the power of imagination awakes. This when exaggerated gives us the first form of insanity, *Hallucination.* So long as the child does not believe in its hallucinations or is easily persuaded out of them, we have only an increased imagination, but as soon as they become fixed facts to him he is insane. Hallucination may occur at any age after perception of impressions begins, but the form of delusion will depend on the mental development. A child cannot see in hallucination a beast or form it has not met, or call a name it has not heard. There may be delusions of all the senses. Those of sight are most frequent, of hearing rarer, while but very few cases are reported of delusions of taste and smell. As soon as the child's mind begins to form judgments we reach a step higher and now have hallucinations of judgment (Wahnvorstellungen) instead of hallucinations of sense (Sinnestäuschungen). It is not, however, possible to draw the close distinctions in the forms of insanity which we make in adults. Most childish mad fancies are of melancholic character. The ideas grow from the thought which has previously been uppermost in the mind. Thus we find fears of punishment, of poison, of being suspected of wrong, etc. Peculiar original fixed ideas and schemes are not found in childhood, as these imply a fully developed brain. When we got a step beyond these simple mad fancies we find that *mania* is a more frequent form of insanity in children than melancholy. Exaltation of the psychical condition is more often found than depression. The mania often breaks out like a thunder-peal from a clear sky, and becomes a mania furiosa. This form is rare before the seventh year, and often occurs as sequel to the motor neuroses. The variety and scope of the mania will depend on the age of the child and its intellectual development. In depression of the psychical state the insanity generally begins with hallucinations of various kinds, and is apt to develop into hypochondriasis. This form also comes in the later years of childhood and presupposes a weakened and depressed constitution. It frequently occurs with commencing puberty. In earlier years, even in melancholy, the motor nervous forces preponderate and we have melancholia activa. It is not till later that we find true, deep melancholia cum stupore, melancholia attonita, or even catalepsy. There is a peculiar form of insanity, attributed by some especially to sexual abuse, which consists of *compulsory actions* or conceptions (Zwangshandlungen). A boy, whenever he struck against a stone, was compelled (by his insanity) to turn around and strike it twice again, when he spit, to spit twice again. Many extremely interesting examples of this are given. The author does not believe it has any connection with sexual abuse. Examples are also given of insane longing for investigation (Grübelsucht). These forms of insanity frequently disappear in later life. A remaining group is made up of the *alienations*, complete psychical degeneration, ending in imbecility.

In closing his article, the author divides these forms under three rather indefinite heads. 1. Impulsive insanity. 2. Psychical degeneration (including the greater part), and 3. Periodical insanity. He gives the symptoms of each class, but they run so closely into one another and are so fully drawn out in each class that we shall not attempt to make so imperfect a sketch of them as the limits of an abstract allow.

2. **Hirschsprung: Peculiar Localization of Acute Rheumatism** (*Jahrbch. f. Kindhlkde.*, XVI. B., 3 u. 4 H.).—PROF. H. HIRSCHSPRUNG in discussing acute rheumatism mentions first some points in which it differs from the same disease in adults. It is seldom that we find a classical case, with high temperature, sweats, varied and changing joint affections etc. Generally the cases are in appearance mild, there is not much fever or sweating, and only one or two joints become affected. The first point noticed is that in these mild cases, as they seem, affection of the heart is extremely frequent. H. says there is no doubt that many valvular deficiencies found in later life are due to an unobserved rheumatism in childhood. The next point is the frequency of relapses and and the prominence of heart symptoms, still more marked in such second attacks. H. discusses the relation of chorea and rheumatism, and then passes to the main point in his article. In Gerhardt's work, Rehn first described a form of rheumatic affection of the tendons and their sheaths.

Meynet had reported the first case and Rehn added one of his own. This was all there was published on the subject up to the present article. Now H. reports 6 cases, in all of which there was more or less of this peculiar localization. Without taking the cases up separately we find that they all agree with the points mentioned above as peculiar to rheumatism in childhood, low fever, frequent heart affection, etc. At different times, though never right at the first of the attack, one was surprised at discovering under the skin a variable number of large and small tumors. The surprise is greater because they do not announce their appearance by any increase of fever, tenderness, disturbance of function, or anything more than perhaps a slight redness of the skin. Fever seems to have no relation to their occurrence. They seem to prefer the vicinity of the affected joints. They do not seem to grow from small to large, but they either have their full size statu nascenti or attain it very rapidly. Generally the eruption is plentiful, the size and localities varying. There are three forms: miliary, in the tendons and their sheaths; somewhat larger in the tendons and especially the extensor tendons at their insertions or where they pass over large joints; still larger tumors or tubercles, attaining even to the size of a split walnut and found where bone lies close to the skin, as the patella, malleoli, cranium, etc. Their consistency is in all cases cartilaginous. The small ones disappear in a few weeks, while the larger ones take months. There is a decided tendency to spontaneous involution, so that but little importance may be paid to the therapeutics in these cases. With a new attack of the rheumatism there will probably be new eruptions of the tubercles.

Where do they arise and of what do they consist? It was at first supposed that they started from the bone, or rather the periosteum, and the point discussed was from which layer of the latter the different kinds arose. Meynet disputed this point and claimed they arose from aponeurotic tissues. Rehn agrees with this, believing they are due to an inflammatory proliferation of tendinous tissue. In an autopsy made by Prosector B. Bang on one of H.'s cases, the correctness of this opinion was well shown. Bang concludes his account thus: "The tumors must therefore be considered as new-growths of connective tissue, at first of chronic inflammatory character and with a tendency to necrobiosis. Probably they arise from the tendons as the similarity of the two structures is very striking."

3. Demme: Pilocarpine in Scarlatina and Diphtheritis (*Jahrbch. f. Kindhlkde.*, XVI. B., 3 u. 4 H.).—PROF. DR. DEMME adds to the important articles he has already published on the use of pilocarpine this fifty-page résumé of the literature and careful personal study during four years of the advantages and disadvantages of the drug, both in general, and particularly in scarlatina and dipththeria. In 1877, he mentioned its use in diphtheria, as more rapidly loosening the membranes, but Dr. Guttmann first recommended it as directly curative of the disease. Prof. Demme has since then continued his experiments unceasingly and is able to-day to offer the following conclusions:

1. The fact that the records of results obtained from the use of the muriate of pilocarpine differ in so many respects is to be partly explained by the admixture in some of the preparations used of the second alkaloid of the jaborandi leaves, JABORINE. According to Harnak and Meyer, the

physiological action of jaborine is allied to that of atropine, while the action of pure pilocarpine more closely resembles that of nicotine.

2. The dose to commence with should be as follows: From the end of the *first* year to the close of the *tenth*, 0.005 grm., before the twelfth month, 0.001 to 0.0025 grm. by subcutaneous injection. When the drug is normally well borne, these doses can afterward be doubled or repeated several times a day. For internal use twice or three times this amount is to be given in distilled water, 50.00 to 75.00 grm., and with the addition of a little mucilage if the intestines are irritated.

3. If the object is to obtain the quickest absorption and action of the drug, the hypodermic method is the best, but if we wish a continuous and lasting action the doses should be divided and given internally through the whole day.

4. The vomiting and the collapse caused by it, which occasionally accompany the subcutaneous injections, may be avoided by giving beforehand a little cognac, wine, coffee, or strong tea, or by an injection of ether. Such precautions are also necessary in the internal use of the drug.

5. With the usual medium doses and but a short continuance in their use no weakening effect on the heart's muscles is to be observed. When, on the other hand, large doses are given several times a day and continued two or three weeks, we find a decrease in the energy of the heart's contractions, there is irregular flapping together of the heart's muscles, decrease of general temperature, and finally general collapse. We may also see, in consequence of the weakness of the heart, a loss of consciousness and a Cheyne-Stokes respiration. The stoppage of the drug and restorative measures usually remove these symptoms with rapidity.

6. Individual susceptibility to pilocarpine varies very greatly, it may even vary at different times in the same person. There is a vicarious relation between the sialagogue and diaphoretic effects. Beside the sialagogue and diaphoretic action of the drug there is another branch of its action as an increaser of secretions, and that is *expectorative.* In some cases it produces a copious secretion from the nasal, laryngeal, and tracheal membranes.

7. Another effect, though not a constant one, is the increase in the amount of urine. This occurs at the highest point or toward the close of the diaphoretic action. It is due to the increase of blood pressure and the rapidity of the current in the vessels of the glomeruli, though possibly the drug has some action on the vaso-motor nervous system of the kidneys or even on the central nervous system.

8. Sometimes at the beginning of the diaphoresis, we note a general "erythema" spreading over the greater part of the body. This is an expression of the widening of the peripheral vascular system, especially the capillary vessels of the skin, as the commencing action of the drug.

9. In those cases of scarlatina in which the outbreak of the exanthema is delayed or incomplete and in which, in consequence of this (?), severe brain symptoms exist, such as sopor, convulsions, etc., by an energetic pilocarpine diaphoretic action, brought on by subcutaneous injection, the blood is most rapidly freed from the scarlatina virus circulating in it, the exanthema brought out more completely, and in this way the brain symptoms best of all met and conquered.

10. The occurrence of scarlatinous nephritis in either an early or later

period of the disease is *not* prevented by even very early and regular administration of pilocarpine at either the outbreak of the eruption or in its florid stage. On the other hand, when the dropsical symptoms exist, nothing will so well hold them in check and bring about a rapid disappearance of them, the effect on the organic affection of the kidneys being also apparently most favorable.

11. In the rapidly developing forms of very extensive glomerular and interstitial inflammation, the prophylactic administration of pilocarpine will not prevent the outbreak of uremic symptoms, while again in the less intense and more slowly developing forms of nephritis the timely and continued use of pilocarpine will keep off the most threatening uremic manifestations, and better than any other therapeutic means bring them to a successful result.

12. As mentioned under No. 6, one of the effects of the general secretion-increasing power of pilocarpine is a great increase of the secretion of the membrane of the respiratory system, and, in consequence of this, the softening and liquefying of any tough masses of secretion deposited in these parts and the easier throwing off of the same. This "expectorant" action of the drug may aid greately in the more rapid cure of catarrhal laryngitis, of true, non-infectious, and infectious croup, of catarrhal pneumonia, etc., and especially the initial emetic action of the drug when used subcutaneously—like any sharp emetic, but with much greater effect — may overcome immediate threatening laryngo- and tracheo-stenotic symptoms. In genuine throat diphtheritis and the diphtheritic throat of scarlatina, the pilocarpine effect was seen in a more rapid spontaneous loosening of the diphtheritic membrane and the fibrinous deposits throughout the mucous membrane. Demme was unable, however, to observe any *direct specific action of the drug on the actual diphtheritic infectious virus.*

4. Dr. Otto Soltmann: Primary Sarcoma of the Vaginal Membrane and Secondary Sarcoma of the Bladder (*Jahrbch. f. Kindhlkde.*, XVI. B., 3 u. 4 H.).—Although a search through the literature of the subject would seem to show the rarity of malignant growth in the genito-urinary tract of children, and although, while a few cases are mentioned of sarcoma of uterus, ovaries, etc., the vagina and bladder seem to have been scarcely even suspected, yet the latest observations seem to show that malignant growths of exactly these two regions, in the very early periods of life, are not such rarities as has been supposed. In many cases, they have undoubtedly been overlooked. Among other reported cases, the author mentions two from Sänger and Ahlfeld as of interest in connection with his own. The first was a typical round-celled sarcoma (sarcoma medullare), situated on the anterior columnæ rugarum vaginæ of a girl three years old, which later attacked the bladder and caused death by perforation and peritonitis. The second case was a congenital tumor which filled up the vagina with polypoid growths and also affected the bladder, and which was afterward found to be a fibro-sarcoma. Soltman's case resembles both of these in some points.

Pauline Koch, 2½ years old, had suffered for more than a year from difficult urination, pressing and crying during the act. She had lost flesh and strength. There was a round tumor pressing out from the vagina, and in the fall of of 1880, when she began to lose blood from this and could not walk well, she was taken to hospital and the tumor removed. Since then it had grown again. Lately the child had been languid and had slept a great deal. The parents were both strong and healthy. On Dec. 4th, the child was taken into Dr. Soltmann's hospital service, with high fever and almost in collapse. She was of good size for her age, and quite well nourished, face pale, edematous, drawn by pain, gaze uncertain, alæ nasi tremulous, great dyspnea existing, and sharp bronchial breathing, and râles over both lungs. During examination she fell into collapse. Pulse, 152. Temp., 40.5.

Dec. 5th. she passed 80 grm. of offensive alkaline urine, containing albumen, epithelium, and a great deal of pus. A greenish-yellow fetid discharge flowed from the vagina, the labia were pressed apart, and pressing out between them was a bunch of polypoid masses in a group likes grapes, each about 1–2 cm. long, of jelly-like consistence, and yellowish-red color. These could be traced by the finger almost to cervix uteri. The hypogastrium was greatly distended, but through the walls a round tumor could be felt just above the umbilicus. The dyspnea and symptoms of collapse gradually increased, and Dec. 6th, at 4 P.M. she died. Dr. Marchand gives for the author a very exhaustive account of the condition of all the organs at the obduction. Suffice it for us that no doubt remained that it was a case of mucous membrane sarcoma of the vagina, characteristic in its grape-like form, leaving the uterus free and attacking the bladder in the recognized manner. The organic changes in the kidneys were marked, but the author believes them to have been caused only by the hydronephrosis and the anemia. The symptoms toward the close of life, besides the local ones, were those of chronic uremic trouble, with great anemia. The case is interesting from an etiological stand-point on account of the age of the patient. Out of 9 cases of reported tumors of the vagina, 5 occurred between 2½ and 3 years. This case makes the sixth. The other four occurred at earlier dates. These dates make it probable that the trouble is congenital and dependent on the papillary growth of the mucous membrane of the vagina, and that this, as in the author's case, is usually the starting, primary point of the disease.

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ORIGINAL COMMUNICATIONS.

THE CURABILITY OF UTERINE DISPLACEMENTS.

BY

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It has struck me as a curious fact that the great text-books on the diseases of women, while they freely discuss the treatment of uterine displacements by the various measures long in vogue or still under consideration, entirely omit all mention of the permanency of the effects of these measures, of the possibility or actual occurrence of perfect and enduring recovery from the displacement. We who practise gynecology as a specialty are constantly asked the question by patients whom we have told, after examination, that they have a displacement, that their womb is tipped forward or backward, or is bent instead of being straight: "But, doctor, my womb can be put back or made straight again, can it not?" or "I can be cured, can I not?" And what does the information imparted to us by the books, as well as our own experience, permit us to answer to this common and very natural inquiry? Nothing, I fear, which will prove very encouraging to the patient or satisfactory to us, if we adhere closely to facts and do not take refuge in equivocal remarks. Relief while the treatment is continued, and a prospective (possible) cure after a greater or lesser period, is all we can honestly promise.

Again, the patient is told that she must wear a supporter for her displacement, and her invariable question is: "Must I wear it long?" And what answer, again, do our text-books permit us to make? None; for they tell us nothing about the length of time it requires for a pessary to cure a displacement. And we are obliged to fall back on our own individual experience (such as it may be) for an answer—an experience which is as variable as the cases from which it is derived and the remedies employed.

This question, how often a chronic uterine displacement can really be *cured* permanently, has interested me greatly for some time; and two comparatively recent journal articles on the subject, containing reports of results entirely at variance with those in my practice, have induced me to consult the authorities and my own record-books with a view to throwing some light upon the matter, if possible, and arriving at some positive conclusion. Both patients and physicians can but be benefited by a precision of the results to be expected from treatment in dislocations of the uterus. My deductions will show whether any positive conclusion can be evolved from the imperfect observation of these cases, such as is now practised by the majority of physicians. It is merely necessary to say that the subject of inversion of the uterus does not come under consideration in this article, as the nature and treatment of that displacement are foreign to my purpose; and, also, that the treatment by bloody operation of distortions (flexions) of the uterus, and of prolapsus uteri et vaginæ, will not be discussed at length, for the reasons that dividing a flexed cervix does not straighten the uterus, and cannot, therefore be looked upon as a cure in the sense in which I here employ it, and that the occasional cure of prolapsus by operation is admitted. Let us first see what our eminent authorities have to say.

Barnes, in his second edition, 1878, says on p. 598, speaking of anteflexion, "If the displacement is associated with weak fibre, it is only by slow degrees that the uterus acquires the power of preserving its proper form and position. Some months, perhaps many, will be required for a cure; and we must ever be prepared for disappointment. . . . The cure will be even more protracted if there is any marked degree of atrophy or thinning at the angle of the flexion. In this case new growth must take place. In proportion as this process goes on, the inferior or anterior wall gets strengthened, as we may imagine it would if we could apply a splint to its length. I believe that in some cases in which the patient has not reached the climacteric, this does take place when the uterus is maintained in a straightened condition by mechanical supports." Again, on retroversion, p. 604, "Gradually under the influence of this support (a lever pessary) the tumefaction of the body of the uterus diminishes, and with it the tendency to fall backwards; the vagina and other supports, relieved of undue strain, recover their tone; and, by-and-by, the pessary can be dispensed with."

Graily Hewitt says of his cradle-pessary for anteflexion, that "it can be worn for a period of several months without any difficulty, and in long-standing cases a year may be required to perfect the cure," and later, "when the case has been cured up to a certain point, it is sometimes advisable to employ an air-pessary instead of the cradle-pessary. . . . There are cases in which this method is alone sufficient to cure anteflexion." Of versions I find nothing said as regards a cure. Emmet in his recent book very thoroughly describes the mechanics and rationale of pessaries, but merely says that prolapsus uteri et vaginæ may occasionally be cured by astringents, and allows us to infer what we please as regards the other displacements.

Thomas, than whom no man has had more experience with or is more partial to the use of mechanical supports in displacements, says in his last edition, p. 426: "Were I asked from the treatment of which class of uterine diseases I experienced the greatest satisfaction, and felt that I had accomplished the most good for my patients, I should unhesitatingly reply, anterior displacements of the uterus." Again (p. 438), speaking of posterior displacements, "where the vagina is attached to the cervix so near the external os that no pessary can rest posterior to the cervix to sustain the uterus after it is replaced. This form of utero-vaginal junction is important as giving ground for a very grave prognosis as to the cure of all anterior and posterior displacements." Again (p. 445): "Some of the most gratifying results of gynecology will be found to arise from a cautious, patient, and philosophical treatment of these cases" (posterior displacements).

Hegar and Kaltenbach, in the last edition of their work on "Operative Gynäkologie," 1881, say: "In general the treatment of retroversions and retroflexions by lever pessaries is one of the greatest acquisitions of the modern school of mechanical therapeutics.'"

The vague character of these various statements as regards a perfect, permanent CURE of the displacement is apparent. Not one author says in so many words that an old ante- or retroflexion or version is capable of cure by any mechanical means at our command. On two points they nearly all agree, however; namely, that a great amount of relief can be afforded by mechanical supports; and that an old complete prolapse of the vagina and uterus is curable only by operation. None of the authorities quoted go so far as to say, on the other hand, that anterior and posterior displacements are generally incurable. I will now cite from two recent German authors, who give their opinions in a somewhat more positive manner on the negative side.

Chrobak, in his book on "Examination of the Female Genital Organs and General Gynecological Therapeutics," 1879, thus expresses himself: "With the exception of the rare cases in which a cure of the displacement has taken place through the use of a pessary, either by gangrene from pressure with subsequent contraction, or that the case was a recent one as after childbirth, the instances of actual cure of uterine displacements by pessaries are of very rare occurrence. Usually we scarcely succeed in restoring the uterus to its normal position, and must be content, in the large majority of cases, with having achieved a diminution of the displacement, in flexions generally merely a decrease of the version, usually in the same direction, accompanying it."

The most recent work on uterine displacements is that of Fritsch, of Halle, and an excellent book it is. He discusses the treatment of these affections very exhaustively and devotes many pages to the non-operative means, chief of which are pessaries. He disposes of anteflexion by saying that "an influence on anteflexion by vaginal pessaries alone is impossible," and as regards anteversion he says that, as the displacement often depends on conditions which it is impossible to remove, the prognosis as to a perfect restoration to the normal state must be unfavorable. Great relief may, however, be afforded. The hybrid cases of anteflexion with anteversion, developed from the former, are incurable. Speaking of retroflexion, he says: "It may happen that the uterus retains its position after the first replacement. In recent cases, therefore, the attempt may be made to remove the pessary after the first menstrual period . . . and the patient be examined for several days to ascertain whether the uterus is still in its correct position. If all is right, the patient should be told to return on the reappearance of the least symptom. But if the retroflexion soon returns, or the parametran tissues are greatly relaxed, the pessary must be worn for a long time, so long as it gives no inconvenience. . . . A precise period within which these favorable changes (restoration of the ligaments and supports to their normal tone) takes place, cannot be specified. It is admitted that only in recent cases is a permanent cure to be expected. If the tissues about the uterus are relaxed, the retroflexion at once returns when the pessary which had retained the uterus in its normal position for a year or more is removed." The symptoms, of course, have been greatly relieved during this time, and "cases are not rare where the patient returns months or years after the removal of the pessary full of gratitude for her cure (?), and on examining with the happy anticipation of finding the retroflexion cured, behold! the displacement is discovered entirely unchanged." In such cases the symptoms may return after a while, and the pessary be again required. "It would be better if a permanent cure could be effected, but for that more than a support from below is needed, that means, a shortening of the ligaments from which the uterus is suspended above."

"Although we know that the removal of inflammation, that the menopause will bring about a condition equivalent to complete cure, in spite of the persistence of the displacement (retroflexion), such a favorable result is never to be expected with certainty. . . . Radical cure, *i. e.*, permanent retention of the uterus in the normal position, is to be achieved in not a few cases. That these consist chiefly of recent cases, that is, such as come under treatment soon after childbirth or after the development of the displacement, is self-evident."

Dr. Ely van de Warker, in his excellent and widely-known article on "The Intrauterine Stem in Flexions," read before the American Gynecological Society at Boston, in 1877 (Vol. II. Gyn. Trans.) says, after collecting a number of cases from various authors in proof of the value of stem pessaries in flexions, "while I have lost faith in any form of mechanical appliance as a means of 'cure' of flexions, I believe the intrauterine stem to be a most efficient method of retaining the uterus in position," etc.

Winckel, of Dresden, and Amann, of Munich, report, the one 45, the other 16 cases, of flexions and versions which were treated with great success by the intrauterine stem. But a distinct and permanent cure of the flexion is not stated in so many words by either observer. Both, like all other advocates of the stem pessary, merely speak of the successes attained by them with the instrument, of the absence of danger under proper precautions, but close with the statement that the patient was still wearing the stem when last seen. I do not doubt that a flexion *may* be cured by a stem pessary, if the instrument can be worn long enough, at least for six months, especially if the case is one of recent childbirth.

I have lately met with a case in a young married lady who miscarried in the second month of her first pregnancy, and when then first seen by me was found to have an anteflexion of the second degree. By wearing a series of Thomas' cup pessaries with gradual elongation of the anterior rim of the cup, within five months the uterus became entirely straightened and remained so for one month after the removal of the pessary, when conception took place. Of course the miscarriage in this case facilitated the permanent rectification of the uterus.

Now that I have cited so many vague or positively unfavorable statements as regard the permanent curability of uterine displacements, let me refer to two articles which really were the exciting cause for this line of research, and therefore of this communication. In the November number, 1875, of the *Virginia Medical Monthly*, Dr. F. B. Watkins, of Richmond, Va., reported 215 cases of uterine displacement (retroversion 139, anteversion 49, prolapsus 27) in which he employed mechanical supports, and achieved the following results: *Retroversion*—complete recovery, 114; partial recovery, 23; slight or no improvement, 12. *Anteversion*—Recovery, 34; partially relieved, 9; slight or no improvement, 7. *Prolapsus*—Recovery, 22; partially relieved, 4; slight or no improvement, 2. Total: Recovery, 170; partial relief, 36; slight or no relief, 21. The vaginal supporters used were all constructed on the Hodge closed-lever principle, of block-tin wire and hard rubber, accurately fitted. The time of treatment extended over several months, and is not definitely stated.

In the February, 1881, number of the *Chicago Medical Journal and Examiner*, Dr. P. O'Connell, of Sioux City, Iowa, publishes a paper on "The Curability of Uterine Displacements" which, while his figures are much smaller than those of Dr. Watkins, closely follows the tenor of that gentleman's article. Dr. O'Connell begins by expressing great surprise at a statement recently made by Dr. Matthews Duncan, after the reading of a paper by Dr. Graily Hewitt before the Obstetrical Society of London, to the effect that "the treatment of displacement without descent was an utter failure, and that displacement was never cured in the sense that the uterus afterwards remained in place without a pessary." From this the doctor appears to infer that Dr. Duncan, and other eminent physicians (following the lead of the late Dr. Washington L. Atlee) discard and condemn pessaries in the treatment of displacement. In his defense of these valuable aids in supporting a replaced uterus I heartily join him. But I cannot agree, from my own experience, with the extraordinary curative properties which he claims for these agents. He reports eight cases of complete cure; the displacement being in all retroflexion; the pessary, the Albert Smith modification of Hodge's lever pessary. "No woman was pronounced cured until it was ascertained by actual trial that she could dispense with the instrument. This is done by removing the pessary and permitting the patient to discharge all her duties as before. If, after the lapse of a few weeks, the uterus is found in normal position, as determined by the finger and the sound, the pessary is not reintroduced. My observation of the patients extended over one year, the shortest, to four years, the longest period after removal of the pessary, and in no case was the displacement reproduced." I quote his own words. But in the notes of the individual cases, he uses such vague terms to express recovery, as "her health was entirely restored;" "anemia disappeared and menstruation became normal," etc. I have already, in my recent book on "Minor Surgical Gynecology," expressed my inability to cope from my own experience with the marvellous results of Dr. Watkins, and I regret that I cannot, out of a large number of cases treated by me during the past six years (895 of all displacements), find, in the same period of time (three years) as that covering Dr. O'Connell's cases, as many as eight instances of permanent cure of retroflexion by a vaginal pessary. Perhaps I have not watched the patients long enough, or they have not returned. Still, in these respects, my habit and the fidelity of my patients are probably the same as in the practice of other physicians. I will merely mention one more quotation from an article on Prolapse of the Uterus, by W. V. Jakins, L.R.C.P.L.M. Edinb., Fellow Obstet. Soc., London, in the *Australian Med. Journal*, Dec. 15th, 1880, to illustrate the loose manner in which such general statements are made. He says, "In all stages, from the starting point of tension of a uterine ligament from slight displacement, to the last stage of complete extrusion of the entire uterus, bladder, and rectum, relief is always readily afforded by a pessary, and complete cure usually follows, and that perfectly irrespective of the age or habits of life of the patient." Surely, the Australian women must be differently constituted from their sisters in other countries! I do not expect to be contradicted when I assert that in Europe and America no such results are achieved in the cases referred to.

What now are we to conclude from these divergent opinions and statements? Are we to suppose, because many eminent authorities are so vague in their remarks, that the incurability of uterine displacements is tacitly acknowledged (as a prominent physician in New York, with whom I was discussing the subject, said to me recently); or must we assume that the gentlemen who failed to achieve numerous cures were less skilful than the few more fortunate operators? The truth probably is, that the successful men meet with their cases at the most opportune period, soon after delivery; perhaps it may not be slander to assume the possibility of their not having watched their cases sufficiently long after the pessary was removed to make a permanent cure an assured fact. On the other hand, the gynecologists of world-wide fame, from whom I have quoted, have in their vastly greater experience doubtless met with quite as large a number of cures under the same conditions, but have still felt that the majority of chronic displacements were incurable, and have preferred to leave the question unsettled.

From a number of patients with uterine disease I have selected 2,500 cases of which I have accurate notes. Among these there are 895 instances of displacement or distortion of the uterus of one variety or the other. On analyzing these cases, I find that 827 patients were married, and 68 single; 624 of them had had one or more children. Of the single women, only five had a simple retro-displacement (retroversion) and three a retroversion of the anteflexed uterus. All the others had anteflexion and anteversion, with a few instances of lateroflexion and lateroversion. Among the married nulliparæ only 15 had retrodisplacements. The most common displacement was retroversion, of which there were 348 cases, as compared with 55 of retroflexion. There were 295 cases of anteflexion, 102 of anteversion, 10 of lateroflexion, 10 of lateroversion, 5 ante-lateroflexion, 3 retro-lateroflexion, 1 anteversion with lateroflexion, 23 anteflexion with retroversion, 21 descensus with retroversion, 13 total prolapsus uteri et vaginæ. In 8 cases the retroverted uterus was firmly bound down by intraperitoneal adhesions. It should be stated that, in classifying the versions and flexions, many cases were found in which both conditions co-existed ; the predominating condition being chosen to designate the case. In fact, while pure anteflexion is frequently met with, retroflexion, without accompanying (usually preceding) retroversion, is, in my experience, rare.

In order to discuss intelligently the effects of treatment on these displacements, I will briefly enumerate the different methods employed in the treatment of uterine displacements, either for the purpose of mere alleviation of symptoms, or with the object of achieving a permanent recovery.

1. *Pessaries.* These instruments, either vaginal, vagino-abdominal, abdominal, or uterine (stems), are undoubtedly the most common means of treating uterine displacements. The vaginal pessaries act by supporting, elevating, steadying the vagina and uterus, or by rectifying the position of the cervix

or the fundus, or by directly supporting the fundus. The special action of each pessary depends upon its size, shape, and the principle upon which it is constructed. The same may be said of vagino-abdominal pessaries, the sole support of which is derived from an abdominal attachment. Simple abdominal supporters act merely by compressing the abdominal walls and thereby steadying the uterus, or, as in anteversion, by directly pushing back the fundus uteri. The object of every variety of vaginal pessary, except those which act merely by their size and the hyperdistention of the vagina, is to retain the uterus in such a position as to relieve tension on its outstretched ligaments and supports, and give them an opportunity to regain their tone, or to stretch improperly contracted ligaments.

The intrauterine stem acts solely by straightening the flexed uterus and retaining it in its position.

Of the 895 cases of uterine displacement seen by me, 184 were treated by vaginal and uterine pessaries; vagino-abdominal instruments were tried, but invariably discarded for intravaginal supporters, and the abdominal bandages were always employed, whenever needed, in anterior displacement, together with a vaginal pessary.

Thus, of the 403 cases of posterior displacement, 96 retroversions and 31 retroflexions were treated by vaginal pessaries; the retroversions chiefly by the Albert-Smith modification of the Hodge lever pessary, occasionally by the original Hodge or Noeggerath's cradle pessary; the retroflexions by a modification of Thomas' bulb retroflexion pessary, which consists merely in making the pessary shorter and wider so as to adapt it more readily to the roomy vaginæ in which this displacement often occurs. A few cases, in which no lever pessary succeeded in retaining the retrodisplaced fundus, were relieved by a flexible ring pessary (Peaslee's), by which the whole uterus was elevated and the fundus lifted from the sacrum; but in these cases a hope of cure was entirely precluded through the extreme flabbiness of the vagina and its adnexa, or the adhesion of the fundus to the rectum. In one case only of retroflexion was it found necessary, after many ineffectual trials with various forms of retroversion pessaries, to prevent the invariable flexure of the uterus over the posterior bar of the pessary, by inserting a hard-rubber stem; an ordinary Albert Smith then retained the replaced uterus perfectly. In all these cases of retrodisplacement it is an invariable rule with me to return the uterus as nearly as possible to its normal position before inserting a pessary. Only by the careful observance of this rule can the over-stretched or contracted ligaments (as the case may be) be put into condition to regain their normal tone, if that be still possible, in time.

Of the 407 cases of anterior displacements (295 anteflexions, 112 anteversions) only 40 were treated with vaginal pessaries (28 anteflexions, 12 anteversions), and 16 with intrauterine stems (5 anteflexions, 11 anteflexions with retroversion). The reason why supporters were thought necessary or beneficial only in 56 cases out of 407 of anterior displacement, as compared with 127 out of 403 cases of retrodisplacement, is that the symptoms produced by the anterior displacements were so much less acute than those of the posterior dislocations, and consisted chiefly of dysmenorrhea and sterility, that a supporter was indicated only in the aggravated forms, and the flexions were treated and benefited generally by repeated active dilatation with divergent steel dilators. If the dysmenorrhea was relieved (as was almost always the case) by dilatation, but the flexion still continued (as, indeed, was usually the case), if the patient was married and sterile, a pessary was inserted and worn for some months. The stems were used only when the uterus was so flabby as to double over the anterior border of the pessary, or (in anteflexion with retroversion) when it was impossible to secure sufficient purchase on the posterior surface of the uterus, owing to the shallowness of the posterior vaginal pouch and the rigidity of the supports, to elevate the fundus with a lever pessary; in these cases, the stem enabled me to antevert the uterus and retain it thus by a lever pessary with unfailing certainty. Four of these patients wore their stem and Smith pessary for five, three, and two months (two cases) respectively, attending to all their marital and household duties; when the stem was removed at the expiration of the periods named, the uterus was found fairly straight, and was left sustained by the lever pessary in order to give an opportunity for conception. In none of the cases, however, has such a result been as yet reported.

The pessaries used for anterior displacements were : for flexions, Thomas' cup and hinge pessary (recently modified by me by sinking the originally projecting hinge so as to prevent its indenting the vagina) (see Figs. 1 and 2); for versions, I have largely used Gehrung's double-horseshoe pessary, and Thomas' open cup and hinge pessary, both excellent instruments. Where the Gehrung is liable to turn in the vagina, as it does in roomy, freely secreting vaginæ, Thomas' instrument has done me excellent service.

The length of time during which these pessaries were worn varied from a few weeks to many months and several years, the instrument being removed every one or two months, as a rule, in order to be cleansed and to avoid abrasion of the vagina. I have one obstinate case of retroversion of the third degree, who has worn pessary after pessary for five years, and will probably continue to do so until her menopause or later ; her vagina is so roomy and her uterine supports so relaxed that I have at last reluctantly given her a flexible ring pessary which she can remove and introduce herself. In one case the Albert Smith pessary was worn for one year and a half without interruption (against my direction), with the result of producing a deep ulcer behind the cervix.

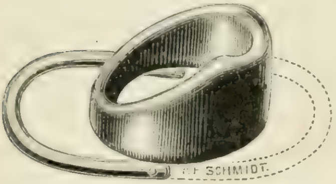

FIG. 1.—Original Thomas' cup anteflexion pessary.

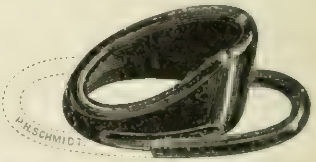

FIG. 2.—Thomas' cup anteflexion pessary, modified : with hinges sunk.

In five cases of anteflexion, conception followed repeated rapid dilatation and during the wearing of a cup pessary (I am inclined to attribute the conception more to the dilatation than the pessary) ; and in 17 cases of retroversion the patients became pregnant while wearing a lever pessary. In only two of the cases of retroversion was it possible for me to see the patient during and soon after confinement (they both being under my obstetric care), and in both the uterus was supported by a lever pessary during the second week before they were allowed to rise; in both these patients the continued wearing of the pessary for six months longer resulted in a complete cure. The anteflexion cases did not return for subsequent treatment, as they would have done had they been sterile again after the first delivery, and I therefore infer that practically (not actually) their distortion was cured.

How many of these 184 cases of uterine displacement treated by supports of one kind or the other were *permanently cured* I am unable to say, for probably the same reason that has prevented other observers from collecting positive data, viz., because patients who find themselves benefited by a supporter go on wearing it for a while, finally remove it themselves, and finding their relief to continue without the pessary do not return, and are thus lost sight of. That they do not return is no proof, however, that their displacement was *cured*. It was temporarily relieved, the symptoms it produced gradually disappeared, and then the pessary could be dispensed with. That such cases were not cured is sufficiently proved by the constant return of the patients months or years after the pessary had been removed by themselves or the physician, with a return of the same symptoms, and on examination the same old displacement is found. It had persisted during the interval, but its symptoms had been temporarily relieved. This holds true particularly of posterior displacements.

Thus, recently a young single lady came to me for treatment for dysmenorrhea, sacralgia, and suprapubic pain. I found a sharply retroflexed uterus, probably of congenital origin, which resisted all gentle efforts at complete reposition. I gradually replaced it by a series of differently curved lever pessaries, and then, after she had worn the last pessary for about two months, removed it, as she expected soon to return to her home in the West, the uterus being perfectly normal. She came to see me again about two weeks later, and the uterus was then even anteflexed; she was too well cured, it seemed. Still she was told to come again in two weeks, but remained away two months, when a return of her old symptoms drove her to me again, and I found the original retroflexion. Without this last examination, I should have pronounced her cured of her displacement. I can find but two cases of positive cure, as demonstrated by occasional examination, of sharp retroflexion; five of retroversion, including the two treated immediately after delivery; three of anteflexion with retroversion, treated by the intrauterine stem and Albert Smith pessary, and one of sharp anteflexion treated by dilatation with laminaria, steel dilators, and hard-rubber stem during six months.

I do not deny that other cases *may* have been cured, but I am as little able to make a positive statement on this matter as the authors whose vague conclusions I have quoted. Had all my cases been private patients instead of a large proportion in the outdoor clinic of a hospital (than which class of patients I need hardly say there is nothing more uncertain and unsatisfactory, so far as therapeutic results are concerned), I might have a better showing. One of the objects of this paper is to invite expressions of opinion and statements of experience by gentlemen whose many years of extensive private practice in this branch has given them far better opportunities of observation than we younger men have yet been able to enjoy.

That an *acute recent* displacement, such as is occasionally produced by a sudden physical shock or jar, as by a fall on the buttocks, can be cured is, of course, not to be denied. Indeed, the mere replacement of the uterus, with rest and quiet for a short time, will usually suffice for a permanent cure in such cases. But I am compelled to admit, as the result of my own experience, that a *chronic* displacement or distortion of the uterus is but rarely, very rarely *permanently* CURED by any form of mechanical support which we are able to make the patient wear with comfort. The reason for this is that the stretched, relaxed, or again contracted and shrunken uterine ligaments, the atrophic or hyperplastic pelvic cellular tissue, and the distended and flabby vaginal walls cannot by any mechanical means in our power be restored to their original normal tone. Only as a result of some great tissue metamorphosis of the pelvic organs, such as occurs during pregnancy and after delivery, can such a restoration to health be expected, and this therefore is the time for treatment.

I have entirely omitted the discussion of prolapsus uteri thus far, because I am firmly convinced of the futility of endeavoring to cure an old prolapsus by means of a supporter, short of the production of a ring of cicatricial tissue through really unjustifiable neglect of the instrument. I find but four cases among my list in which I employed vaginal pessaries, and of these three were treated by the largest size of Gehrung's pessaries, which acted by keeping up the anterior vaginal wall (and acted admirably too), and the other by a large wooden ring which the patient brought with her, and I re-introduced for the want of a more serviceable instrument at that moment. I have been guilty of but one instance of what I consider a wrong method of treatment, viz., the support of a prolapsus by the largest instrument which can be crowded into the vagina, and once of inserting an equally faulty instrument, the Zwanck's pessary, in the first year of my practice.

I have thus far referred entirely to the cure of displacements by pessaries. There are other means of treating and perhaps eventually curing displacements, a discussion of which properly comes within the scope of this paper, such as vaginal tampons, posture, electricity, operations, pregnancy.

2. *Vaginal tampons* applied every day or every other day in a manner to elevate the whole uterus if it be prolapsed, or the ante- or retro-displaced fundus, are undoubtedly a very efficient means of retaining the displaced part in its normal position and, if long enough continued, effecting a cure of the displacement. They are particularly beneficial in cases where the tenderness of the uterus itself or of the parametrium renders a hard pessary unbearable, and specially in old prolapsus uteri et vaginæ if saturated with a solution of alum or tannin in glycerine and water. I have frequently given great relief in both ante- and retro-displacements, as well as ovarian prolapse, when the parts were exquisitely tender to the touch, by packing the vagina more or less tightly with pledgets of cotton soaked in pure glycerine, or tannin and glycerine, or tannin and water if the parts were much relaxed, or I have inserted the cotton dry after Bozeman's method, with the view of obtaining the full effect of its elasticity. I cannot say that I have cured any ante- or retro-displacements by this treatment, although I do not doubt the possibility of this occur-

rence if the applications (particularly with astringents) be continued long enough and be directed chiefly to elevating the fundus uteri. But I have cured descensus uteri, and prolapse of the vaginal wall (cystocele and retrocele) by daily tamponade with tannated cotton, and think this plan the best, indeed the only one, for restoring the tone of the relaxed, flabby vaginal walls in total prolapsus uteri. Of course, the tamponade must be continued for months with a gradually decreasing number of pledgets corresponding to the returning contractility of the canal. Besides, the reduction in size of the uterus and the contraction of cellular tissue by the pressure of the tampons very materially aids in securing a permanent retention of the uterus.

The patients can readily be taught to insert these tanno-glycerated tampons themselves for prolapsus, but for the other displacements a Sims speculum and the correct placing of the tampons with forceps are essential to success. The Sims position, or better still, the knee-chest posture, by restoring the displaced parts, very materially facilitates the tamponade, and increases the chances of success. I have no doubt whatever that complete prolapsus of the uterus of not more than a few years' duration, and, still more so descensus uteri from relaxation of the utero-vaginal supports, are positively curable by this protracted vaginal tamponade, if it be continued with sufficient persistence and intelligence; and the former are the very cases for which the horrible vaginal rings and vagino-abdominal supporters are recommended, and which are curable only by complicated surgical operations.

3. *Posture* has been very urgently recommended by Dr. Henry F. Campbell, of Georgia, for the treatment of uterine displacements, chiefly the knee-chest position, with the addition of pneumatic pressure by the introduction of air into the vagina. A moment's thought will demonstrate the utility of this combined *vis a fronte* (gravitation of the abdominal viscera towards the diaphragm) and *vis a tergo* (air suction into the vagina and pressure against the vaginal roof). This posture is to be assumed several times daily, and maintained each time as long as the patient can bear it, for months, the best time being at night on retiring, when the lateral position is to be at

once taken for the night. The relaxation of the abnormally strained and stretched uterine supports, which was obtained by the knee-breast position, is thus assured for the remainder of the night, or for eight hours out of the twenty-four.

Verrier, of Paris, has constructed a very complicated apparatus of pulleys, ropes and couches, by which the patient raises her pelvis in various positions and degrees by the strength of her arms. He claims good results from this treatment, both in anterior and posterior displacements.

It is evident that, however rational this treatment is, and of that fact there can be no doubt, it can be beneficial only if persisted in for a long period. It has its inconveniences, consisting chiefly in the necessity of occupying a decidedly uncomfortable position for some time every day, and most patients soon tire of this daily routine. I fear that not even the women of our lower classes would submit to the method described by Emmet as employed by the negroes of Currituck, Va., of being suspended in a sling from a beam, in the knee-chest position, while the vagina is kept filled with a decoction of oak-bark, which is changed every day by means of a syringe. By means of a well-padded sling, the patient is said to be enabled to retain this position for ten days with comparative comfort and undoubted benefit. The treatment of utero-vaginal displacements by posture will, therefore, be useful chiefly as an adjuvant to the methods already described, pessaries and tampons, in order to secure momentary replacement of the parts without the pressure of a foreign body.

4. *Electricity*, chiefly the interrupted or Faradic current, has been quite extensively used by some electro-gynecologists (Tripier, of Paris, and Fieber, of Vienna, are the principal writers on this subject), and excellent results are claimed for it in displacements. The positive pole is inserted into the uterus, the negative being placed in the rectum in anterior displacements, in the bladder in posterior dislocations; the method of merely introducing the positive pole into the vagina, and the negative on the skin of the sacrum and suprapubic regions respectively, is certainly more simple and less severe, but scarcely as efficacious. In prolapsus, one pole is placed against the os, the other (bifurcated) over each groin. Tripier reports

30 cases treated in this manner, of which 4 cases of anteversion and anteflexion were cured and 2 were improved, and 1 case of retroflexion and retroversion recovered and 1 was improved. The method is chiefly useful when the displacement is complicated with or actually depends upon passive congestion of the uterus, and in comparatively recent cases. It undoubtedly offers advantages as regards cure which, if the treatment proves at all effective, render the electric current the very best remedy for certain forms of uterine displacement, such as flexions and versions of recent origin complicated with engorgement or subinvolution, and cases of moderate procidentia after childbirth. The treatment should certainly be employed far more frequently than it is, and offers no particular difficulties of execution even to the general practitioner.

5. *Pregnancy* has already been referred to as a favorable stimulus to the supports of the displaced organ to return to their original vigor and position; that is to say, the effect of the stimulus is manifest only after delivery, when the beneficial influence of rest in the recumbent position (not alone the dorsal, however), and of the methods already discussed, chiefly comes into play. The great difficulty is, that women suffering from some forms of displacement, chiefly distortions (flexions), do not become pregnant; or that those suffering from the other varieties (versions and prolapsus) either cannot or do not adopt the only means of giving the relaxed supports an opportunity to regain their vigor after confinement; viz., perfect rest in bed for several weeks or months.

I well remember the case of an American lady suffering from prolapsus, who entirely recovered from her displacement, after a confinement, through being kept in bed and on a lounge for several months by my old friend and preceptor, Scanzoni.

6. The list of curative means for uterine displacements closes with the subject of *Operative Treatment.* Only in flexions and prolapsus of the uterus and vaginal walls do operative measures promise relief or cure; versions have not been subjected to the knife (if we except the almost-forgotten method of Sims to attach the cervix farther forward to the anterior vaginal wall in anteversion, and that of Koeberlé, once performed with success, to stitch the fundus uteri in the

abdominal incision, in retroflexion), because they are usually readily amenable, so far as temporary relief is concerned, to the various supports mentioned.

The operative treatment of flexions by discission, and posterior and bilateral division of the cervix and internal os, has of recent years fallen somewhat into disrepute, as it was found that the method was dangerous and the results as regards permanent straightening of the canal anything but satisfactory. The rapid, forcible dilatation of the cervical canal, by means of graduated sounds and steel divergent dilators, has become more popular, and has, in my hands, certainly produced excellent results, although I can hardly claim to have permanently straightened a sharply flexed uterus by this treatment. Still, I have seen a fair number of conceptions rapidly follow the frequently repeated dilatation, and as a result of the conception and delivery, a practical cure of the distortion. The curative influence of repeated forcible dilatation of the flexed and stenotic uterine canal, in the treatment of dysmenorrhea and sterility, is a subject which I hope, ere long, to subject to thorough statistical analysis. It would lead me too far to do so at present, and the matter is, indeed, foreign to the exact scope of this paper. I will merely add that sponge-tents inclosing watch-springs, bent in the direction opposite to the flexion, laminaria, tupelo and slippery-elm tents, have been largely used as dilating and elevating means in uterine flexions; but, hitherto, owing to the almost invariable sooner or later appearance of inflammatory reaction in the uterus and adnexa, with little uniform success.

The operative treatment of prolapsus with its many complicated variations is equally beyond the object of this paper. The still increasing number of modifications and "improvements" is sufficient proof that the desideratum of a uniformly successful curative operation has not yet been reached. Suffice it to say that, with but few exceptions, the cure of the prolapsus is but temporary, and that a year or more generally re-ushers the uterus into the outer world. In spite of this rather discouraging statement, prolapsus uteri et vaginæ offers the best prospects of any displacement for the knife of the surgeon, and has at least a wide range of magnificent possibilities.

How long a pessary must be worn before it is safe to remove it with the expectation of seeing the uterus retain its normal position, is a difficult question to answer. The length of time required to cure a displacement by a pessary (when, indeed, such a cure is at all possible) depends almost entirely on the more or less recent origin of the displacement. If it is recent and the supports not yet atrophied or shrunk beyond repair, or if the pelvic organs be undergoing involution, as after childbirth, the shortest time a pessary should be worn would be three months, but six months or a year would be the usual period, and a cure might *possibly* be achieved after two years or longer. Only trial, and a careful estimation of the reparative powers of each case, can answer this question.

The other methods of treatment in this respect entirely resemble the mechanical supports; perhaps astringent tampons might in suitable cases prove curative at an earlier period.

One very striking case occurred to me some five years ago, when a lady, who in her first labor fifteen years previously had sustained a perineal rupture down to the sphincter ani, consulted me regarding a very distressing prolapse of the posterior wall of the vagina, a so-called rectocele. I told her that, in view of the perineal defect, a radical operation would be required, but that I would endeavor to make her comfortable until the hot weather was over, by contracting the vagina with tanno-glycerated tampons introduced daily. I proceeded on this plan, and showed the lady how to introduce the tampons herself when she left town for the summer, assuring her that an operation would positively be needed in the fall. When she called on me some three months later, I found the rectocele entirely cured, although she had not inserted the tampons for over a month, and so it has remained to this day. Thus I lost, not a good patient, for she was deeply grateful for what she believed to be my skilful treatment, but unintentionally a very lucrative operation. The unexpected good result was doubtless due to the fact that the lady had been confined again only five months before she consulted me, and that therefore the rectocele was partly caused by deficient involution of the vagina. Still, in a fair number of other cases of the same affection which I have seen soon after delivery, no astringent or any other applications succeeded in permanently relieving the vaginal displacement.

Vaginal Injections.—The use of so-called "strengthening" injections into the vagina for the relief of uterine displacements is so common among the people that it may be well to say a few words about them as a therapeutic agent. There can be no question that the systematic, copious irrigation of the vaginal canal by hot water in time produces a permanent contraction of its walls and probably also of its supports. That it reduces congestion of the uterus and pelvic tissues and thereby acts beneficially in displacements is equally beyond doubt. But whether the *hot* water actually restores their normal tone to the uterine supports is the question. I am rather inclined, in cases of old displacement with flabby anemic vagina, to favor injections of cold water with some astringent and the addition of a certain proportion of alcohol. I thus frequently use a solution of half an ounce of sulph. of zinc, four ounces of alcohol and two ounces of glycerin to one quart of cold water (iced in summer) when there is positive absence of pelvic congestion, and think I have seen a better retention of the replaced organ by the pessary result from this treatment.

I certainly never treat a case of uterine displacement, by pessary, tampons, posture, or otherwise, without the daily systematic employment of vaginal irrigation, hot if congestion is present, cold and medicated if there is merely want of tone.

The conclusions at which I have arrived as the result of these remarks are that:

1. *Recent* displacements of any variety are the only cases which offer a fair chance of complete recovery by any of the mechanical means at our disposal.

2. Of these means, pessaries are the most convenient for temporary relief, but only in a comparatively small number of cases does permanent cure result.

3. The best curative means of support of the displaced uterus is probably the systematic and intelligent use of vaginal tampons, impregnated with a mild astringent solution.

4. Posture, while excellent as a means of relaxing the uterine supports and relieving pelvic congestion, is by its inconvenience at best but a means of temporary relief.

5. Permanent relief, CURE, can be expected and will be obtained only when the displacement is of recent origin, especially when it has been produced by some sudden physical shock; or when the complete tissue-metamorphosis accompanying puerperal involution aids in restoring to the uterine supports and the uterus itself their original and healthy tone.

This fortunate occurrence must be looked upon as decidedly the exception, since the favoring circumstances above mentioned are but rarely met with or the displacement is seldom recognized at a sufficiently early date to permit of a perfect restoration to health.

6. The most favorable period, therefore, for the treatment of a uterine displacement or distortion with the view to a permanent cure is within one or two weeks after delivery, before the woman has left her bed.

7. The excitation of a certain amount of plastic exudation in the walls of a flexed uterus may, if kept within bounds, result in permanent straightening of the organ. This may be accomplished by rapid dilatation, or by the protracted wearing of stem-pessaries, but permanent success will at best be rare.

8. The protracted wearing of astringent vaginal tampons, introduced daily, offers for some cases of ante- and retro-displacement an excellent, and for most cases of procidentia, almost the only efficient and safe remedy for the displacement, far superior to all steadily-worn hard or soft pessaries. A procidentia of uterus or vagina may even be cured by several months of this treatment, if the affection be not of too long standing.

9. While permanent cure is only occasionally met with, so much relief is afforded by pessaries and the other mechanical supports and methods above discussed that they should in no case be discarded, unless all treatment be counterindicated.

10. Electricity, if rationally and scientifically applied for a sufficiently long period, offers chances of cure of comparatively recent cases, which call for a more thorough and persistent trial of the method.

11. For prolapsus uteri et vaginæ, unless of quite recent origin (see tampons), an operative constriction of the vaginal canal and a restoration of the relaxed or destroyed perineum to its normal state is the only sure means of cure, and even for this affection the unfailing method remains still to be discovered.

12. The *cure* of a flexion by operative (bloody) treatment is impossible; the canal may be made comparatively straight by a division of one or the other or both lips of the cervix, but the flexed shape of the organ still remains. Only by gradually increasing elevation of the fundus by a vaginal pessary (best, Thomas' cup), after delivery, or by the protracted wearing of an intrauterine stem, can in a small proportion of cases a permanent cure be effected.

ON A PECULIAR ARRANGEMENT OF THE OVA IN TWIN PREGNANCIES;

AS OBSERVED IN TWO CASES.

BY

PIERRE BUDIN, M.D.,

Adjunct Professor of Obstetrics in the University of Paris.

(With nine woodcuts.)

CASE I.—On June 19th, 1880, while examining at the Maternity Hospital an afterbirth from a twin delivery which had taken place during the night, I noticed a peculiar relation of the secundines. At first glance, there seemed to be only one ovum; there was a single large pouch formed by the membranes, but on the periphery two distinct placental bodies were visible (Fig. 1). On looking through the single orifice, O, which appeared in the membranes, a first cavity was found with a cord proceeding from a placenta (A, Fig. 2). A second opening, O′, next appeared in a membranous septum, and through this opening a second pouch was reached, in which another cord was found, which was inserted into the placenta, B. While at first, therefore, there appeared to be only one membranous sac, closer investigation showed inside of this a second pouch. Each of these sacs had contained a fetus.

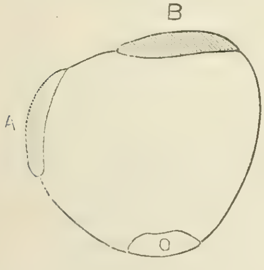

FIG. 1.

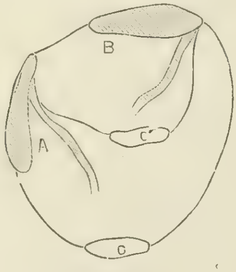

FIG. 2.

The labor had presented nothing extraordinary whatever. The woman who had been delivered of this placenta had come to the hospital at 6 P.M. of the 18th; she was 24 years of age, and in her first pregnancy. She was unable to state when she last menstruated. With the exception of some edema of the legs and lower portion of the abdominal wall, during the last three weeks, her pregnancy had been normal. June 18th, at 3 P.M., she had begun to lose water, and regular pains had come on. At 8 P.M., the os was dilated, and at 9 o'clock a child was spontaneously expelled in right sacro-iliac breech presentation. At 9.10 o'clock, the second bag of waters was ruptured, and at 9.35, a second child was expelled in vertex presentation. Both children were females, healthy and alive. The first weighed 2,080 grammes, the second, 2,650. The placenta followed naturally.

CASE II.—Struck by the peculiar arrangement of the afterbirth, I put it aside, intending to study it during the day, as I had my rounds to make, and to attend the clinic of Prof. Depaul. Shortly before 11 o'clock, I was notified that a woman with an abnormal presentation had just been brought into the lying-in chamber from without. I found her to be a primipara, 39 years of age, who had last menstruated October 7th, 1879, and believed herself to be seven and a half to eight months pregnant. She was seized with pains and a loss of amniotic fluid at 8 o'clock on the previous evening, and being told by a midwife that the labor was likely to be a difficult one, was brought to the hospital. On examination I found that the woman had not arrived at term, for the fundus uteri reached only to the false ribs on the right side. Although she had lost water since the previous day, a certain quantity of amniotic fluid was still detected at the fundus. On palpation, during the short intervals between the pains, a quite voluminous, soft mass was felt at a level with the superior strait. At the fundus a fetus was detected in a transverse position, the head under the left false ribs, the breech under the right. An arm was felt in the vagina, which proved to be the right one. Beside it the funis was to be detected, pulsating but feebly and slowly. The ribs could be reached with two fingers. There was thus a right shoulder presentation, in right acromio-iliac position, the dorsal surface backward. The sacro-vertebral angle could easily be reached; indeed, the woman said that she was unable to walk until her fourth year. The tibiæ showed slight curvature. Auscultation revealed the rapid cardiac pulsations of a fetus. The diagnosis, therefore, was: twin pregnancy, existence of a notable amount of liquid at the fundus uteri, and the rupture of the membranes since the previous day; further, the presence of two large fetal extremities at the fundus uteri, and another large part at the superior strait; the small size of the arm in the vagina as compared to the volume of the uterus; finally, the difference between the feeble, slow pulsations of the cord in the vagina and the rapid, sharp beats audible at the fundus. The presenting child showing signs of premature respiration, owing to the compression of the cord, I at once performed version and extraction, which succeeded with some difficulty. The child was asphyxiated, but I succeeded in fully resuscitating it. On examining the woman half an hour later, I found the second child in a left sacro-iliac breech presentation, with the left hand prolapsed. I brought down a foot, and with considerable difficulty extracted the child, the head chiefly passing the contracted superior strait only after forcible supra-pubic expression. The child was rapidly revived. Subsequent measurement showed the conjugate diameter to be ten centimetres. The two children were males; the first weighed 1,600 grammes, the second, 2,100 grammes.

The afterbirth was expelled in the usual manner. On examining it, I perceived that by a singular coincidence it possessed almost precisely the same peculiar formation as that seen several hours previously. There was one large sac which, seen from without, seemed single. On the surface of the membranes there were two separate placentæ. On looking through the orifice, O (Fig. 3), a cavity appeared which had contained the first child, the funis of which was inserted in the placenta, A; behind this cavity there was another, which had contained the second fetus, with its cord running to placenta B. There was only one difference between the two afterbirths; namely, that in Case I. the funis of the second fetus was inserted at the margin of placenta B (battle-door placenta)—in Case II., the cord of the second child arose from the centre of placenta B.

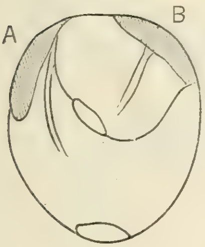

FIG. 3.

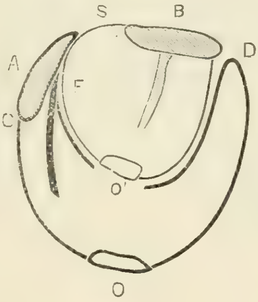

FIG. 4.

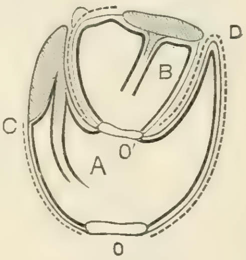

FIG. 5.

I carefully studied these two afterbirths in the hope of finding an explanation for this to me at first incomprehensible anomaly. An accurate dissection of both gave the same results, and a single description will therefore suffice.

First of all, I could in each afterbirth completely separate and isolate the two ova. A small portion of placenta, A, as far as F, was covered by the membranes of the ovum, B (Fig. 4). These membranes were easily separated from the surface of the placenta A. It was equally easy to separate the membranes of ovum B from those of ovum A, from the point marked F to O′, and from O′ to D. In fact, each afterbirth consisted of two complete ova, contiguous but entirely distinct.

There was thus a first ovum, A, with its placenta, its funis, its amnion, its chorion (Fig. 5). There was also a decidua reflexa, which covered the whole of the external surface of the ovum from C to D. This ovum constituted a large sac, which contained the second ovum, B, precisely as a nightcap covers the head or a serous membrane an organ. At O was the first opening, or the orifice through which the first fetus had escaped.

B constituted a second ovum, with its placenta, cord, amnion, and chorion. A reflexa was present in the interspace between the two placentæ, B and A; that is, in S. To the opposite border of placenta B, at D, reached the membranes of the other ovum.

Almost the entire circumference of ovum B, except between the two placentæ, was thus covered by the membranes of ovum A.

This ovum B, or inclosed ovum, had, for its part, rolled or pushed back the membranes of ovum A, or the enveloping ovum. In this manner its chorion came to be applied without becoming adherent to a portion of the fetal surface of placenta A.

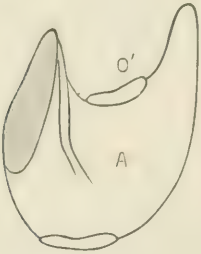

FIG. 6.

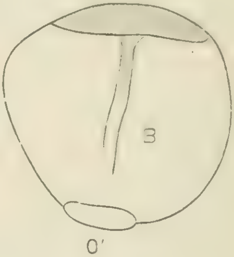

FIG. 7.

The result was that in ovum A the cord, for a distance of three to four centimetres, was attached and adherent to the chorion of the same ovum, A.

The opening of ovum B was at O′. It was necessary to pass through the first ovum at O, in order to rupture the membranes of the second ovum at O′.

The two ova being separated, there were thus in the membranes of ovum A two distinct openings, at O and at O′, the latter being merely the passage of communication with ovum B (Fig. 6).

In ovum B there was, on the contrary, but one opening, O′ (Fig. 7).

Such was the position of the two ova.

It is therefore evident that the chorion was formed by four contiguous membranes: the amnion and the chorion of ovum A, and the amnion and the chorion of ovum B. If there was no distinct membrane between the two choria, at all events, there were a number of filaments which seemed to be the remains of the decidua reflexa.

The dissection of the ova was made in the presence of Dr. Léon Dumas, of Montpellier; the specimens were shown to Drs. Ribemont, Lefour, Gaulord, Duchamp, Bitot, and others.

What is the explanation of this formation? Might not these two cases give rise to the thought that one ovum was fecundated while the product of another previous conception was present and developing in the uterine cavity?

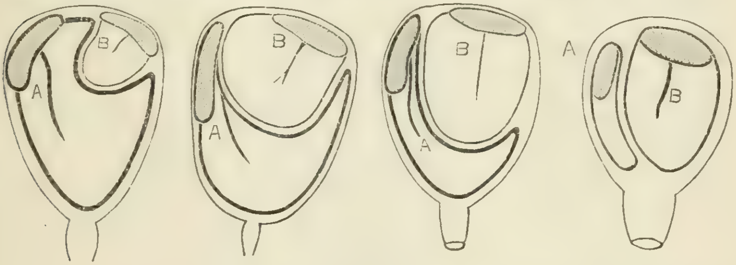

Fig. 8.

One hypothesis is the following: An ovum being already in process of development in the uterine cavity, a second ovum is impregnated. It descends into the uterine cavity like its predecessor, and during its growth lifts up the membranes of the first ovum, by which it is, as it were, completely enveloped. According to this view, the ovum A was first developed (Fig. 8), and was followed by ovum B. But it is less comprehensible how the membranes of ovum A could in both cases extend to the spot where they were attached to the edge of placenta B. Under the growth of ovum B, they should have permitted a progressive lifting and detachment.

Further, by a striking coincidence, the fetus of ovum A (the first-born) weighed, in the first case, 600 grammes, and in the second case 500 grammes less than the fetus of ovum B (second-born). It would therefore seem that the fetus of ovum B was in both cases the first to have been conceived and developed.

But there is another theory. Ovum B arrived first in the uterine cavity, and grew there. We know that between the decidua vera and the decidua reflexa there is no immediate adhesion; that, in fact, such an adhesion does not take place until after a number of weeks (see specimens by Coste in the College of France). Ovum B being already fixed and developing in the uterine cavity (Fig. 9), ovum A subsequently became impregnated, and likewise grew there. From its point of attachment it spread in the cavity as best it could, making room for itself wherever there was any to be found, and extending as far as possible. It thus spread into the free space between the decidua reflexa and the decidua vera of ovum B, which had already attained a certain size. It thus extended as far as the point D, enveloping, swallowing as it were, ovum B.

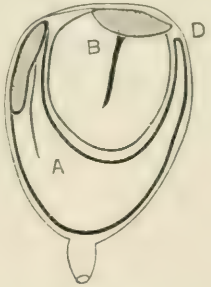

FIG. 9.

This second hypothesis seems to me the more plausible; at all events, it agrees with the greater development of the fetus contained in ovum B, which weighed 500 and 600 grammes, respectively, more than the fetus of ovum A, and it permits a more ready comprehension of the extension of the membranes of ovum A, as far as D, at the border of the placenta of ovum B. The remnants of decidua found between the chorion of the two ova then were those of the reflexa.

Whatever may be thought of these theories, whatever views may be held on the subject of super-fecundation and superfetation, the peculiar arrangement of the ova in these two cases is unquestionable. I have thought it worth while to report the observation, as I have been unable to find a similar instance in literature.

A COMPLICATED TWIN DELIVERY.

BY

R. B. BURTON, A.M., M.D.,

New York.

(With two woodcuts.)

MRS. S., of Second Avenue, a primipara eight months advanced in pregnancy, was taken in labor about five o'clock on the morning of July 14th last. But little progress was made until one o'clock on the following morning, when I found the os considerably dilated and the head presenting so far as the protruding and tense membranes permitted me to determine. In the hope of expediting labor, I ruptured the membranes and about a quart of fluid escaped. Palpation now revealed to me the presence of twins. A vaginal examination a few minutes later showed the umbilical cord prolapsed into the vagina and the fetal head still inclosed in membranes presenting at the os. After an ineffectual attempt to replace the pulsating cord, I ruptured the membranes again (thinking that I had probably opened only the outer membrane or chorion at the former attempt), and as the head at once descended and pressed on the cord, applied the forceps and rapidly extracted a living child in an L. O. A. position. Only about two ounces of fluid escaped at this rupture. After detaching the child, I made an examination and found to my great surprise that the prolapsed cord belonged to the remaining twin, as also did the membranes first ruptured. As this child also presented with the head, I at once extracted it with the forceps, but the child was dead. The children were both males, and weighed six pounds each. The placenta was expelled in the usual way, and appeared to consist of two placentæ joined in the centre, rather than to be one single organ. There were two amnia and one common chorion.

I am in doubt as to whether the head first presenting belonged to the child whose cord prolapsed, and whether the head receded after the rupture of its membranes; or whether the unusual arrangement of the two ovisacs existed by which both sacs presented at the external os at the same time, the amniotic septum between the two cavities traversing the external os somewhat to the right of the median line. I am inclined to the latter view, as it is rather improbable that the head of the child in sac A (first ruptured) should have receded when once it was so low down and have made room for the other head. There certainly was nothing like an interference between the two heads and no appreciable cause for such a recession. I can merely suppose that the two membranous sacs presented at the os simultaneously, the one containing the head of the child first delivered (that is, the sac ruptured second) being at the left of the pelvic brim and occupying the larger part of the inlet, the other presenting with a small segment on the right side. In rupturing the membranes the first time, I presume I accidentally opened the smaller sac on the right side and thus gave exit to the waters of that sac which washed out the cord of child II., but the head of child I. (in sac B) being originally lower down, at once descended into the pelvic cavity, and being taken by me for the head of the child with the prolapsed cord, was extracted with forceps in order to save its life.

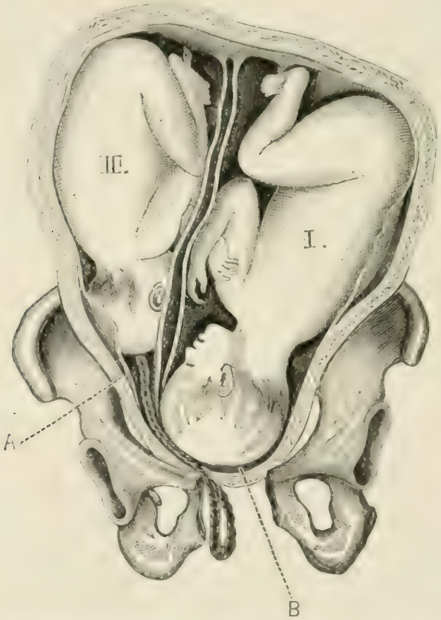

FIG. 1.—A. Membrane ruptured first. I. Child born first. B. Membrane ruptured last. II. Child born last.

I have not been able to find a similar anomalous presentation of twin ovisacs recorded in the text-books or medical literature. The accompanying diagrammatic sketch may illustrate the condition as I originally supposed it to be, and I have added a drawing to show the ordinary arrangement of the ovisacs in twin pregnancies. A comparison between the two sketches will at once explain my theory.[1]

212 East 48th st., Aug. 30th, 1881.

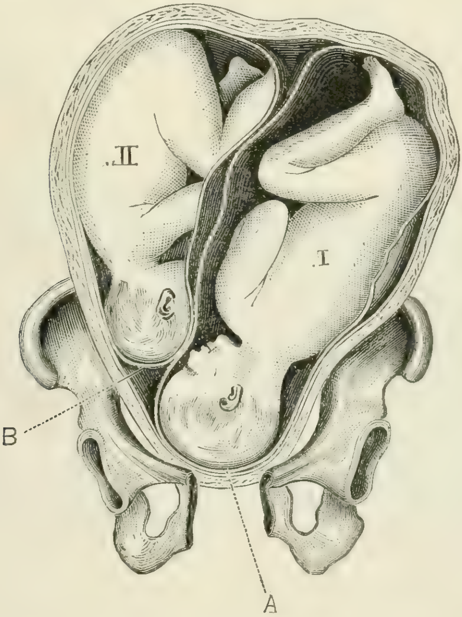

FIG. 2.—Usual relation of membranes in twin pregnancy. A. Membrane ruptured first. I. Child born first. B. Membrane ruptured last. II. Child born last.

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[1] I am informed by the Editor of another possible arrangement of the membranes in my case, which has recently been observed in two instances by Prof. Pierre Budin, of Paris. In his cases, one ovisac was included within the other, and the one first ruptured may thus have been the outer one containing the cord, the head first felt and extracted being in the inclosed ovisac, which was ruptured at the second attempt. As Dr. Budin's paper with diagrams appears in this number of the JOURNAL, I will refer to it for additional details. The arrangement of the placentæ in my case differs from his, where they were entirely separate, and this fact renders me more inclined to adhere to my first theory.

THE CLINICAL FEATURES, ANATOMY, AND USES OF THE GENU-PECTORAL POSTURE.

BY

DAVID BERRY HART, M.D., F.R.C.P.E.,

Assistant to the Professor of Midwifery, University of Edinburgh.

(With three woodcuts.)

THE contour of the anterior abdominal and pelvic surface of the nude female varies according to the posture she assumes: when erect, the curve of the pelvic floor is markedly convex; and there is a slight bulge of the viscera just above the symphysis (even in the most spare woman), and a lessening of the antero-posterior diameter at the sternum. As a general rule, it may be stated that, whatever posture a woman may assume, the abdominal viscera will bulge at their lowest point with compensatory and equivalent shrinking elsewhere. Under no circumstances have we ever a vacuum in the abdominal and pelvic cavities, so that all the changes in the contour are just the same as one would get from a homogeneous plastic fluid of the average specific gravity of the abdominal and pelvic viscera. If a woman then be placed in the posture known as the genu-pectoral, and the contour of the pelvic floor and anterior abdominal surface noted, it will be seen that the antero-posterior diameter of the abdomen is increased near the sternum and diminished just above the pubis; that the iliac fossæ are more hollowed, and the pelvic floor, chiefly in the middle line, furrowed and flattened.

The labia majora and minora are still in contact and no further change takes place when they are held apart and the fourchette lifted up. It is only when the hymeneal orifice, the anatomical entrance to the vagina, is opened that we find the vagina becoming a large cavity. The distention of the vagina with air is not, however, the only change following the opening up of the vaginal orifice proper. Coincident with it we get an increase in the antero-posterior diameter of the abdomen at its sternal end and a coequal lessening of the same just above the pubis. The anterior vaginal wall lengthened will be found to follow more or less the contour of the posterior aspect of the symphysis pubis; the posterior, also lengthened, the curve of the sacrum, both thus diverging markedly from the line parallel to the axis of the brim which is the direction of the vagina (leaving out of consideration its upper part) in the undilated and normal condition.

So far the work of observation is easy. The difficult point is to find out the exact changes in the position of the uterus when a patient assumes the genu-pectoral posture and the vaginal orifice is opened.

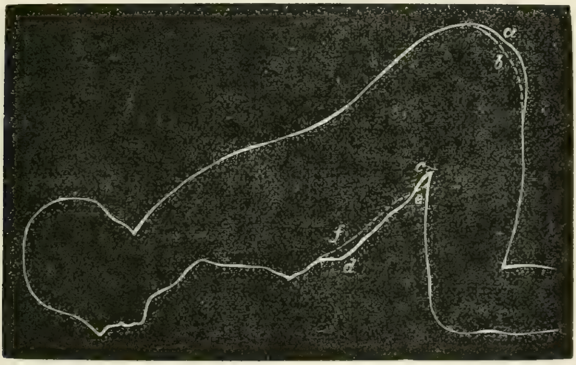

FIG. 1.—Diagram based on frozen section and silhouette tracings of nude female in genu-pectoral posture. The dotted lines show the contour of the pelvic floor and anterior abdominal surface when the vagina is undilated; the plain line, when vagina is dilated (Simpson and Hart).

In the first place, when the uterus is normal in position to begin with, *i. e.*, lying anteverted in a posterior line (the woman being erect) somewhere between the axis of the brim and a parallel to the horizon, it becomes more anteverted when the woman is in the genu-pectoral posture, passing down as a whole toward the thoracic diaphragm and up nearer the sacrum. Probably the cervix moves over a greater space, but on this point I am unwilling to dogmatize. The uterus is certainly further from the vaginal orifice. The finger passed into the vagina touches the cervix therefore with greater difficulty. The most important fact, however, is in regard to the changes in position of the retroverted uterus when a woman assumes the genu-pectoral posture and the vagina is dilated.

It will be found to have passed further from the vaginal orifice and nearer the sacrum. The cervix has certainly moved over a greater space than the fundus, so that the uterus as a whole appears more retroverted. Now, nothing is more often reiterated than that the retroverted uterus becomes anteverted when the patient assumes the genu-pectoral posture and the vaginal orifice is dilated. This I believe is never the case. The fundus may not be felt by the vaginal fingers, but a careful bimanual will show that it is still retroverted, and probably to one side of the sacrum. The bimanual is very easily performed when the patient is in the genu-pectoral posture, as the abdominal walls are in no way tense. Now, I am aware that many eminent gynecologists hold that spontaneous replacement of the retroverted uterus does occur in the genu-pectoral posture when the vaginal orifice is opened to admit air. I can say,

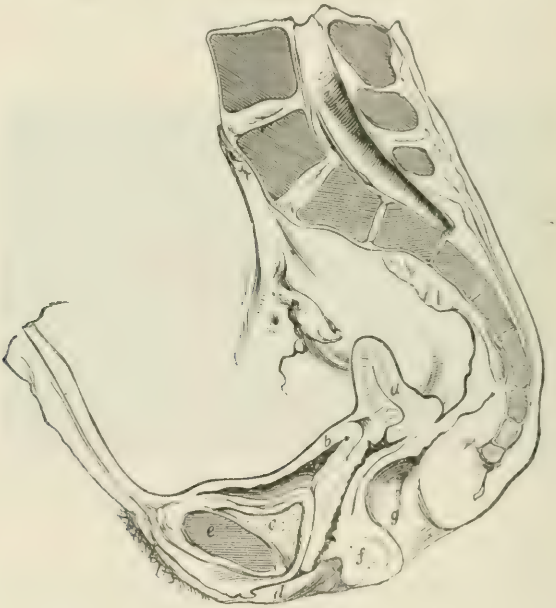

FIG. 2.—Vertical mesial section of adult female pelvis (less than half size).

a, Uterus anteflexed and drawn back. *b*, Bladder. *c*, Retropubic fatty tissue. *e*, Symphysis pubis. *f*, Perineum. *g*, Rectum.

All in front of anterior vaginal wall, inclusive, is pubic segment. All behind posterior vaginal wall, inclusive, is sacral segment (Hart).

however, that I have never seen such a result in any case, nor do I believe it possible.

Any one can note this in a case, say, of retroversion of the three months' gravid uterus. When the patient is in the dorsal posture, the bulge of the displaced fundus can be easily felt. On vaginal examination, when the patient assumes the genu-pectoral posture and the vaginal orifice is opened, the bladder passes down with the intestines, carrying the cervix with it. The heavy fundus lags behind, and passing nearer the sacrum gets jammed and does not replace because the vertical from its centre of gravity falls on the perineal side of the transverse line round which it rotates when it replaces. But, it may be urged, the vagina is not fully distended with air and therefore the uterus does not replace. If a Sims speculum be introduced and the posterior vaginal wall hooked forcibly up, then the fundus will pass to the front and the vagina be found fully distended with air. Quite true. But the air distention is the result of the fundus swinging down, and not the cause. By introducing the Sims speculum fully, and hooking up the posterior vaginal wall forcibly, two things are done. First, the fundus is pushed on, and by the tension of the posterior vaginal wall the cervix pulled towards the perineum. This causes the vertical from the centre of gravity to fall on the intestinal side of the transverse line of rotation, and therefore the fundus drops down so as to lie over the bladder. In a case recorded by Mundé, of New York, the retroverted gravid uterus was replaced by making the patient assume the genu-pectoral posture and hooking the perineum forcibly up with Sims' speculum. There is no doubt but that Dr. Mundé replaced the uterus so. The point to determine is what were the factors of the replacement. I would urge that Mundé, by passing in the Sims speculum and hooking up the posterior vaginal wall, pushed the fundus forward, and that it then gravitated down by its own weight. The vagina became fully distended as the result of this.

Complete replacement of the retroverted uterus can only be obtained when, in addition to the genu-pectoral posture and opening of the vaginal orifice, pressure on the fundus through the rectum, or distending the rectum with air or water, or bringing down the uterus towards the vaginal orifice with a volsella are employed.

To sum up, the clinical features of the genu-pectoral posture are:

a. Before the vaginal orifice is opened.

1. Increase of visceral bulge at sternum, decrease just above pubis, and diminished pelvic floor projection.

b. After vaginal orifice is opened.

1. Distention of vagina with air.

2. Slight increase of visceral bulge at sternum and diminution above pubis.

The uterus, when normal in position, alters its position in a way not quite made out. The retroverted uterus does not replace.

In order to understand the anatomy of the genu-pectoral posture, some preliminary matter must be lightly sketched.

If a vertical mesial section of the female pelvic floor be studied, it will be seen that the pelvic outlet is filled up by a thick fleshy layer—the pelvic diaphragm. Running through it parallel to the pelvic brim from skin to peritoneum is the vagina—a mere slit as thus shown. A convenient nomenclature is to consider this pelvic floor as made up of two segments, a pubic and sacral one. These are easily defined. The pubic one is attached to the pubis and ends posteriorly with the anterior vaginal wall. The sacral segment is dovetailed into the sacrum and ends anteriorly with the posterior vaginal wall. (See Fig. 2.) Let us now briefly contrast these two segments. It is evident that the pubic segment is loosely attached to the pubis. The anterior wall of the bladder and urethra meet each other at a right angle, so that we get the space between these and the symphysis pubis filled up with a large amount of loose fat—the retropubic fat. Consequently the pubic segmant can revolve round the symphysis as a fixed point. The sacral segment on the other hand is firmly dovetailed into the sacrum and coccyx.

If we examine the relation of the pubic segment to the pubis, we shall find that in the ordinary erect posture the empty bladder is behind and below the pubis, that the urethra and anterior bladder wall meet each other at about a right angle, that the fat in front of the bladder is retropubic, and that the peritoneum passes from the anterior abdominal wall on to the bladder fundus at the level of the top of the symphysis pubis.

(See Fig. 2.) The retropubic fat is in its shape and position a rough index to the position of the pubic segment. If the whole pelvic floor be bulged further down, as it is at the end of pregnancy, the retropubic fat is low down below the subpubic ligament; when the bladder is drawn up in parturition, the fat is above the symphysis. Thus I was led theoretically to anticipate what Dr. Simpson and I actually found in a section of a cadaver frozen in the genu-pectoral posture.

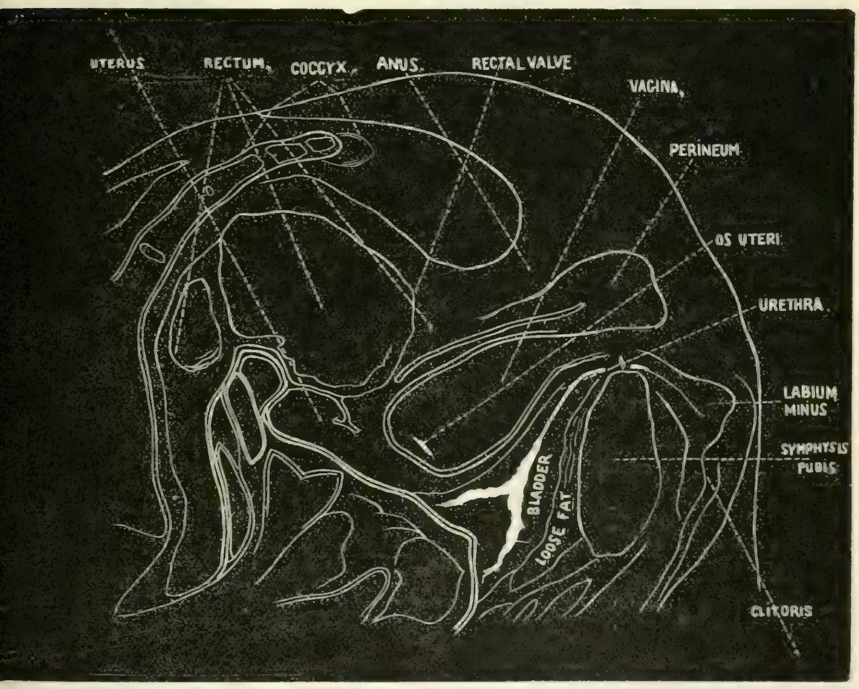

FIG. 3.—Reduced from Simpson and Hart's frozen section of genu-pectoral cadaver (pelvis shown only).

There the bladder proper is above the pubis; the peritoneum passes from the anterior abdominal wall on to the fundus of the bladder more than an inch above the top of the symphysis pubis, the retropubic fat is partially above the pubis, and the anterior bladder wall and urethra are almost in the same straight line. (Fig. 3.) It is evident, then, that in the genu-pectoral posture, when the hymeneal orifice is stretched, the pubic segment passes down with the viscera, the sacral segment remains behind. In this way we get the vagina dilated. Now what are the factors producing this curious change? Briefly they may be summed up as follows:

When the patient turns on her knees and droops her head and chest, the viscera bulge at their lowest part, owing to gravitation acting on a plastic mass. The sternal bulge is compensated for by the flattening of the pelvic floor and the diminution of the pubic antero-posterior diameter. Dilatation of the vaginal orifice admits air, makes the pressure on the skin and vaginal aspects of the sacral segment equal, and acting on the vaginal aspect of the loosely attached pubic segment, drives it further down. By the recoil up of the sacral segment and the drop down of the pubic segment we get the vagina dilated.

In regard to the changes in the uterine position I defer explanation at present.

The physical nature of the abdominal and pelvic contents and walls, the action of gravitation on them, atmospheric pressure, and the anatomical attachment of the pubic and sacral segments of the pelvic floor, constitute the factors bringing about vaginal dilatation in the genu-pectoral posture.

The uses of the genu-pectoral posture to the gynecologist are much more limited in my opinion than is generally believed.

For specular examination the semi-prone position (which is a modified genu-pectoral) gives the best view. In the genu-pectoral posture the anterior vaginal wall is more hollowed and more in the shade, especially in its upper part. For the relief of ovarian congestion, in cases of difficult urination, and for the insertion of prolapsus uteri pessaries, the genu-pectoral posture has obvious advantages.

For replacement of the retroverted uterus the genu-pectoral posture is only valuable in so far as gravitation can act on the fundus after the latter is manipulated by rectal pressure, rectal distention, or volsellar traction on the cervix. Otherwise the genu-pectoral posture is disadvantageous for replacement, seeing that the fundus and cervix are further from the vaginal orifice, and the fundus closer to the sacrum. So far as the patient is concerned, the genu-pectoral posture is an awkward one. To the gynecologist its consideration is valuable practically, seeing that the study by Marion Sims of this distention with air in this posture of the vagina has given gynecology its most valuable speculum and gynecological science some of its most interesting physical facts.

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PREGNANCY, PARTURITION, AND CHILDBED AMONG PRIMITIVE PEOPLE.

BY
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St. Louis.

[Continued from p. 618.]

ALL primitive people resort to expression in one way or another. The Finns, in tedious cases, compress the abdomen by a belt or binder of some kind or by holding the patient up, suspended, and shaking her as they would a pillow out of its case—a proceeding which is more efficient than mild, and serves as a last resort to the natives of Mexico as well as other far distant people. In Syria, some effort is made to support the perineum in the same manner as is usual with us. In Mexico, as I have already said, they seek to overcome the tension by the introduction of the hands, and in India the parts are carefully anointed, as it is done by some of our Western tribes. The description of an Indian labor, as given me by Dr. McCoy from his experience at the Nisqually agency, will give an excellent idea of the assistance which is tendered the Indian woman in her confinement. "The midwives, of whom there are two in attendance, call upon the Great Spirit for help in a muttering tone, and in the same tones name over the parts immediately connected with the parturient effort, and often all the joints and limbs of the body. By applying their hands to the abdominal walls they try to ascertain the position of the fetus *in utero* and usually to correct malpresentation. They use oil to anoint the parts, and just before the expulsion of the child give medicines to increase the pains."

Somewhat similar was the experience of Dr. Shortt among the natives of Southern India. He says: "When the woman is taken with labor pains, her relatives and family friends come in and crowd around the sufferer, who is directed to walk about. The midwife, an old woman of experience, rubs her with oil and bathes her back, loins, and lower extremities in warm water; if the pains are false, the woman may partake of food, but after the commencement of labor nothing is given. She is made to sit with her legs extended, one assistant supporting her back, whilst the nurse shampoos back and loins, and her friends keep up a constant noise by talking. Prior to the rupture of the membranes, the nurse places a bag filled with ashes under the perineum as a support and to prevent the clothes being stained. The pelvis and abdomen are rubbed with a limpid oil and shaken several times to promote delivery. The membranes are not ruptured; this is left to nature; when the head protrudes the nurse supports it with her hands and directs the woman to lie on her back."

Little is known to these people of the assistance given by the abdominal muscles, a help which has been recognized even in ancient times and so judiciously advocated by Susruta, who limits the efforts of the patient to the expulsive pains and advises more or less use of the abdominal muscles according to the progress made by the head of the child. The influence of the emotions is, however, thoroughly recognized, as is evident by the incantations to which the prophets of the tribe resort. In Russia, in India, and America, a sudden shock is often made use of and proves a wonderful help in hastening the expulsion of the child; it is appreciated as such by the Kalmucks who always have a number of men, with their guns in readiness, waiting near the bed of the patient; as soon as the midwife perceives the head distending the perineum she signals the men who fire simultaneously, thinking to assist nature by the sudden fright which the noise must cause. A similar practice is occasionally resorted to among the Comanches, and Dr. Forwood, who attended a Comanche squaw in a difficult labor, told me that at a former confinement of the same patient, a practical application had been made of the effect of fright. She was brought out on the plain and *Eissehaby*, a noted warrior, mounted on his fleetest steed, with all his war paint and equipments on, charged down upon her at full speed, turning aside only at the last moment when she expected to be pierced through the body and trampled under foot. This terrible ordeal is said to have been followed by the immediate expulsion of the child.

Besides the incantations which are customary as a last resort in difficult cases, there are a great many ridiculous superstitions in regard to labor, and much nonsense is practised with the view of making labor easy. Thus in the middle ages the stars were consulted. Some of the most northern of the Russian tribes think to make labor easy by obliging the parturient to give the names of such men, besides her husband, with whom she has cohabited, and he, by a messenger, informs the midwife of his own misdeeds in that direction. Should the labor prove a difficult one, notwithstanding this important proceeding, it is ascribed to a false statement on the part of husband or wife. The Finns kill a chicken and hold the animal struggling in the agony of death before the pudenda of the mother. Another custom of theirs is to ply the husband with beer, mixed with *Ledum palustre*, upon the eve of his wedding day, in order to produce deep sleep, during which the wife crawls through between the husband's legs without his noticing it. But no more of this. All of these various superstitions are equally as efficacious as the incantations of the Klamath squaw who tells the child, as she anxiously watches the progress of the labor, that a rattlesnake was coming to bite it, if it does not hurry into the world and leave its present abode.

Although most savage tribes have roots and herbs to which they resort in various diseases, they rarely seem to make use of them during labor. We have just seen that the Indians of Washington Territory give some medicine just before the expulsion of the child, and that *Uva ursi* is used by others. The tribes of Russia use a decoction of *Artemesia vulgaris* to increase the pain; in the same way *Achillea millefolium* is used, and this latter is universally resorted to in all uterine troubles. In the government Riäsan, *Comarum palustre* is used. The Esthonians give the patient a decoction of valerian with beer. Those who have no medicines, or cannot afford them, in the interior of Russia, let the patient blow with all her force into an empty bottle, or place a vessel or pot, like a surgical cup, upon the abdomen, or they make the poor woman swallow some ashes or a few lice in place of other medicine.

We have seen that the Indians of the Uinta Valley Agency drink a good deal of hot water during labor. The Crow Indians of Montana drink tea made of various roots and leaves, the kind preferred being made from the root of a plant called *E-say*, said to resemble the tobacco plant, with a root about as large as a turnip. Small quantities of whiskey are also frequently given during labor, and so much importance is attached to this that any price will be paid for a pint or two which is frequently carried about for months before it is to be used. The Winnebagos and Chippewas give the patient, just before the delivery of the child, a drink from a root steeped in hot water which is supposed to relax the system and make delivery quick and easy. The Indians of the Skokomish agency use a tea made from the leaves of *Uva ursi* which they believe from their own experience to possess oxytocic properties. In India, it is considered very dangerous for the patient to drink water during labor. In ancient Mexico, a decoction of the root of a plant called *civapacthi*, which possessed some oxytocic properties, was given, but if the pains were too severe, a small piece of the tail of an opossum, carefully rubbed down in water, had to be taken. However ridiculous this may seem, it is not more so than a prescription given by the court physician in Siam to a lady of high rank at the time of her confinement: "Rub together shavings of sapan wood, rhinoceros blood, tiger's milk (a fresh deposit found on certain leaves in the forest), and cast-off skins of spiders." The Sandwich Islanders drink freely, before confinement, from a mucilage prepared from the inner bark of the halo or hibiscus tree. Susruta advises the parturient to drink quantities of sour rice gruel. In southern India, it is still customary to take some food in the early stages of labor, but as soon as the pains distinctly set in, no more is permitted. Where labor is so short, there is little opportunity to take food, hence little can be said of the customs of primitive people during labor in this respect.

Whatever villanous decoctions the lying-in woman may be obliged to take, her labor, as we have seen, is, as a rule, an easy one, and if we consider in connection with this the stoic character of the Indian, we will not be astonished that during the throes of labor the mother is usually dumb and patient, and willing that the child should inflict any pain to accomplish the delivery. Although comparatively quiet, at the recurrence of each pain the parturient woman will frequently utter a plaintive cry, and in this she differs somewhat from her white sister; the latter will most frequently announce the occurrence of pain by a sound which by the old women has been determined "grunt," the former gives vent to a low plaintive cry, best expressed perhaps, by the words "wail" or "whine." But sometimes the Indian squaw gets noisy and restless in her suffering, and a description which is given of a laboring woman in the days of the ancient Hebrews, some thirty-five centuries ago, appears much more natural to us and is much more in accord with the sufferings which we suppose a woman to undergo. It is said of the parturient that "she trembles and writhes in her pain" (1 Sam. iv. 19). Her face is all aglow, she sees and hears nothing in her anxiety, especially the primipara cries out aloud and says, with extended hands, "Woe unto me, for my soul succumbs to the murderers" (Gen. iii. 16). And for men there seems to be no greater threat than "the heroes of Moab will upon that day show a bravery equal to that of a woman in labor pains"[1] (Jer. xlviii. 41; xlix. 22).

CHILD BED.

As I have treated fully of the third stage of labor in my last paper, I shall in no way here refer to it, but will at once pass to the consideration of the puerperal stage, and as so little attention is paid to the treatment of the patient during that period, I shall confine myself to the *treatment immediately after delivery*, as she is then for a few moments still under the control of the midwife or attendant, and something is always done before she is permitted to go to her home or her place of retirement through the period of uncleanliness that follows.

Among the Apaches, it is deemed very essential that, as soon as the placenta is expelled, the woman should be kept on her feet, walking about for half an hour or more, so as to favor a free discharge of all retained blood and prevent its coagulation in the womb. The same custom is observed among the Da-

[1] Kotelman: Die Geburtshülfe bei den alten Hebräern.

kotas, among the Flat-Heads, Pend-d'oreilles, Kootenais, and among other of the Indians of the Pacific coast, and wherever it is not especially mentioned I should suppose that the custom was at least unconsciously observed, because it is rarely the case that the Indian squaw remains abed after her confinement; she certainly moves about sufficiently to accomplish the end desired, even if it is not done with the purpose definitely in view. It will be remembered that upon the banks of a stream was the place usually sought by the laboring woman among primitive people the world over for her solitary confinement; delivered of her child she bathes in the cleansing waters—this is done by most of our Indians, by some of the natives of Africa, the inhabitants of Ceram, the still savage tribe of the Yurakere, by the natives of Bolivia, the Sandwich Islands, the Antilles, and of India. It is everywhere the same; the mother, usually with her babe in her arms, plunges into the stream to cleanse herself; or, if the labor is conducted by a midwife, she leads the patient to the water where she is washed *secundem artem*, redressed, and then allowed to return to her place of seclusion or to her home, and very frequently to work, according to the varying customs among different tribes.

Among many of the tribes of the Sclavonians, several buckets of warm water are poured over the patient's abdomen; the Klamaths steam themselves—a custom which they continue for several days after delivery. The Pahutes also continue their ablutions frequently for days after confinement, mother and father both indulging in frequent washings in imitation of some original first parents, whom tradition informs them were very cleanly. The Siamese cleanse themselves with still greater thoroughness, but with fire instead of water; "with the expulsion of the child begins a month of penance for the mother—exposure to true purgatorial fires. It is ingrown into the native female mind in Siam that the most direful consequences to both mother and child will ensue, unless for thirty days after the birth of her first child—a period diminished five days at each subsequent birth—she exposes her naked abdomen and back to the heat of a blazing fire, not two feet distant from her, kept up incessantly day and night. They think the due quantity, quality, and duration of the lochial discharge depends on their exposure to the fire. And this is done in the following way: A fire place is brought in or extemporized on the floor of the lying-in chamber, by having a flat box or a simple rectangular framework of planks or trunks of banana trees, some three feet by four, filled in with earth to the depth of six inches. On this the fire is built with sticks of wood nearly or quite as large as one's wrists. By the side of this oblong frame, and in contact with it, raised to a level with the fire, a piece of board six or seven feet in length is placed, and on this a coarse mat spread; upon this, or on the bare plank itself the unfortunate woman lies quite nude, save with a narrow strip of cloth about her hips; with nothing else to secure her from a fire hot enough to roast a duck. Then, acting as her own turnspit, she exposes front and back to this excessive heat—an experience not to be coveted in any land, but in that burning clime of perpetual summer a fiery trial indeed. The husband or nurse is ever hard by, like her evil genius, to stir up and replenish the fire by night and by day. True, if it blazes up too fiercely for flesh and blood to endure, there is at hand a basin containing water and a small mop with which to sprinkle it on the flames and keep them in check; hot water alone is allowed to quench the patient's thirst. Those whom lack of merit causes to die in childbirth are buried, not cremated as is the rule with nearly all others who die in Siam. It is a custom almost universal on the entire peninsula of Indo-China and Bangkok; not only the Siamese, but the Laos, Burmese, Malays, and others practise it. The women of the Combodians improve upon the experience of those of other nationalities, for they place their couch of repose, the bench of bamboo slats on which they lie, not alongside of, but actually directly over the fire, so that the smoke and heat ascending do their full work, and they see their thirty days and nights drag slowly along, broiling on this Montezuma bed of misery. The Mohammedan Malays are as observant of this custom as are the Buddhist Siamese, so that it does not seem to be of religious origin. Sir John Bowing suggests there may be some vague idea of pacification or purification connected with it (certainly purification). There is one compensation to offset the mischievous consequences of this practice: it makes the woman of that land escape the evils that result in other countries so often from resuming household duties too soon after the birth of the child. The Siamese mother is guaranteed by this custom one month at least the fullest liberty and undisturbed rest by her own fireside."[1]

The *Binder*, which is now gradually passing away among civilized people, has its representative among some of the savage races: the squaw belt is used among most of the Sioux tribes, and is applied by them during confinement, either before the expulsion of the child or before the expulsion of the placenta, and is worn until the next day. It is a leather belt about four inches wide with three buckles. The Kiowas, Comanches and Wichitas use a broad bandage of buckskin, ornamented with beads, which they buckle tightly around the abdomen of the mother immediately after the completion of labor, and this bandage is thus worn for about a month. Some of the Sioux tribes use a broader belt, with a compress underneath, which is worn for a length of time. The Klatsops also make use of a squaw belt, retaining it as long as convenient to the wearer. Of some of our Indians, especially the Yumas, I am expressly told that they wear no bandage; and in old Calabar a handkerchief simply is tied around the abdomen and twisted so as to make it more like a cincture than a bandage; it is placed right over the hard contracting womb. In Syria the regular broad bandage is worn.

With regard to the *time of the puerperium*, or the time of rest which is given the woman in childbed, there is a greater variation among the customs of the different tribes and people than in almost any other feature of that great physiological function of woman. Some observe no period of rest, but resume their ordinary occupation as soon as they have had their plunge in the water after the birth of the child. But among many people there is a certain time of rest and isolation which is governed more particularly by their religious beliefs of their uncleanliness; and very likely some wise law-giver infused this idea into the unwritten laws of the people, with the view of necessitating a period of rest for the young mother. We find this custom as far back as we have record, and it seems that in the period of seven and of thirty days the two periods of childbed are exemplified, first that of the *lochia rubra*, and secondly that of the *lochia alba*. With regard to the first period the puerpera should be as unclean during the time of the bloody flow as she is during the menstrual flow, and this period after the birth of a male child is fixed at seven days, but after the birth of a female at two weeks.[1]

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[1] Notes on Obstetric Practices in Siam. Samuel R. House, M.D., Archives of Medicine, June, 1879.

Similar beliefs existed among many ancient people: in Athens the puerpera was considered unclean, and whoever touched her was forbidden to visit an altar; even the midwife who was present at the confinement was obliged to perform a religious cleansing of her hands at the feast of the Amphidromies, when the new-born child was carried about the family altar. When the Isle of Delos was to be made a sacred island, it was forbidden that a confinement should take place within its shores.

It is evident enough why the ancient Israelites considered the puerpera unclean during the first days after childbirth, but it seems difficult to explain why this uncleanliness should have lasted seven days after the birth of a male and fourteen after that of a female child. Kotelman believes that it was because the female sex was considered the weaker, the most despised, and the one which would cause the most uncleanliness. It is remarkable that among the Greeks the same idea was prevalent.

In the second period, during the white flow, the puerpera was obliged to remain at home for thirty-three days for a boy and sixty-six days for a girl baby, but was no longer considered unclean. We have already seen that some of our Indians seek to cleanse and purify themselves by frequent steaming, others by washing, and the Siamese by a purification of fire through a period of thirty days, which is diminished by five days for each succeeding child. According to other statements, and possibly in other parts of Siam, seven days of this fiery ordeal suffice to purify the unfortunate woman. Among the Kalmucks, a woman is regarded as unclean for three weeks after delivery, but never is she permitted to remain on her bed longer than seven days. The northern tribes of Russia, the Samojedes and others, consider the puerpera unclean for several months after confinement; her husband is very careful not to approach her, and she remains in her hut isolated, often very badly taken care of, so much so that mother and child may succumb to this neglect; only after the expiration of two months is she herself, and the tent in which the confinement took place, thoroughly smoked, and from that time on considered as clean. Ten days is the period of uncleanliness among the tribes of Alaska. In Egypt, those who are in easy circumstances remain abed for three to six days, but poor women resume their ordinary occupations, if not severe, in a day or two; in Syria, a rest of about six days in bed is permitted. In Japan, the puerpera is not placed in the usual recumbent position, but sits propped up by pillows, the mat upon which she was confined being left in place. In this upright position the woman remains for about three days, when gradually the prop behind is removed, till finally she is lying with her head on a high pillow, and at the end of three weeks she gets up and the customary congratulatory feast is given to the relations of the family. Another authority states that the patient retains the recumbent position until the twenty-first day, and then, if all has gone well, takes a bath and resumes her duties. The Yenadies of Southern India ordain a period of isolation of ten days, after which the mother returns to her household and its duties. The same is true of the Vedas, also of Southern India; the first five days after confinement are spent by the puerpera in a hut within call of the *Konan*, together with mother and sister or assistants; on the sixth day, she is moved to a shelter nearer to the *Konan*, in which she remains isolated for another five days. After the tenth day she washes with warm water and turmeric, anointing herself with oil; washing is continued for one month, when she resumes work. Dr. Shortt makes a similar report of other tribes of Southern India; he says that the woman lives in strict seclusion in a small lodge ten or twelve paces from the family home for thirty days after childbirth, frequently washing; before joining the others she has to wash all her clothes and undergo a general purification.

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[1] Kotelman: The Ancient Hebrews.

The Wakamba of Africa put their parturient to work four to six days after confinement. The Wazegua alone permit the woman to rest abed for fourteen days. Most of these tribes also purify by washing with hot water. The Abyssinians and the Somali use slack lime. The women of the Waswaheli sometimes insert the juice of a lemon into the vagina to hasten contraction. The Wakamba ordain a coitus about the third day, and after this the puerpera is considered clean. Among some of the African tribes the women carry an ebony staff for forty days after confinement, for the purpose of keeping off the devil.

The North American Indians seem to be less careful of their women. I am positively informed of the Sioux, the Santees, the Apaches, the Indians of the Neah-Bay Agency, as well as the natives of Ceram and of the Antilles, and the Yuricaria of Bolivia, that they practically observe no period of childbed, but go to work upon the same day or the day after that of their confinement. Other of our Indian tribes observe a certain period of rest; those of the Uinta valley take up their abode in the "*wick-e-up*" in which they are confined, and return to the lodge occupied by the family after from two to four weeks, and during this period they are considered to a certain extent unclean. The women of the Laguna Pueblo remain unwashed and in bed for four days; very early on the fifth the puerpera is washed and dressed under the superintendence of a *Sheaine* or priest, who walks out, followed by the women, to see the sun rise and to render thanks for her safe delivery. As she walks after the *Sheaine* she throws corn blossoms into the air and blows them around as an offering of thanks. Thirty days after the child is born, the woman is clean and her husband returns to her, but some prefer to wait thirty-six, and others forty days. A good many of these Indians, however, have abandoned the fifth-day superstition, the sun worship, and are cleaned or washed at once and get up as soon as they feel able to go about their work. The native Mexican woman remains abed three days; on the third day she gets up and for the first time since her confinement changes her clothing. The lochial discharge is usually abundant and continues for a long time, seldom less than forty days. At any rate it is only after a period of forty days that the woman ventures to bathe herself. After that she drinks freely of a decoction of some native plant for the purpose of increasing the discharge and bringing it to a speedy close.

Very little or no attention is paid to the *food which women* *receive after childbirth*, yet some tribes make a reasonable change in their diet. The Kalmucks feed the puerpera mainly on broth during the first days, giving her but very little mutton, the quantity of meat being gradually increased. Among other of the Russian tribes, as I have already stated, the isolation of the patient is so complete that she is but scantily nourished and glad to get anything she can, and often, together with her offspring, suffers actual want. In Syria, mutton or chicken broth is given on the first and second days, then carminative drinks, cinnamon tea and so on, for six days, after which the quantity of food is gradually increased. In Old Calabar, the patient is allowed a pot full of chop, which her husband has prepared during the labor, to be given her, and she is expected to eat a quantity of it immediately after confinement. In southern India, the natives seem to pay greater attention to the diet of the puerperal woman than in almost any other country. Certain of the native tribes live for three days after delivery on the tender leaf bud or cabbage of a kind of date palm, *Phœnix sylvestris*, after which rice or other food, to which they are accustomed, is partaken of. The Domber give her plain rice on the first day, and on the second *chillie powder* and *curry-pillay* is mixed with the rice. Among the Kanikars the puerpera receives as a tonic for the first day a *kari* (ragout) seasoned with turmeric pepper and tamarind.

The negroes of Africa, as a rule, make very little change. The Waswaheli and Nyassa give the puerpera food highly seasoned with Cayenne pepper and other spices. The Wakamba, like the natives of the Andaman islands, make almost no change. The same I may say of our own Indians, with the exception of the Yumas, of whom I see it stated that the puerpera and the murderer are treated to the same diet; neither are allowed to eat either meat or salt for one month, for the purpose of purification. The Basuthos treat the patient cruelly in refusing her water for three days after confinement, the idea being probably the fear of too great a quantity of milk oppressing the breast. The Loango woman drinks quantities of hot water for several months in order to increase the flow of milk, and she also washes herself with a decoction of the leaves of *Ricinus communis*. With leaves of the same plant steeped in water, the genitals are rubbed and cleansed until the secretion ceases. The young mother, moreover, takes a great many baths in some secluded spot in a slight excavation made in the ground and laid out with mats, where cold and hot water is alternately poured over her and the body is kneaded, rubbed, and anointed.

Of the *medicines* used in the puerperal condition, I can only learn that in Mexico teas from native herbs are given to increase the discharge of the lochia; the same is accomplished in southern India by the use of saffron and *neem* leaves. In Syria, carminative drinks are given. In Siam, hot water has eased the thirst produced by the parching fire; whilst in Africa it is given to increase the flow of milk. Among the natives of Russia many of the stronger and more aromatic herbs are used in the various diseases, and many methods of treatment are resorted to in mammary affections, which seem to be very common in the puerperal state, as the remedies are so numerous. I will mention but one, on account of its peculiarity. In case of hardening of the breast, the patient places herself in front of the heated stove in order to warm the diseased part as thoroughly as possible. In the mean time some other person heats a woollen sock, which has been moistened with the urine of the patient, places it as hot as it can be borne upon her breast and attempts to keep the breast as well as the sock hot and moistened with urine; then some iron utensil, a knife or horse-shoe, chilled in ice, is placed upon the affected breast. The hotter and more moist the breast is, and the colder the iron, the more certainly will the cure be effected. I will not refer to any of the *ceremonies* which are here and there observed, either upon the birth of the child, especially if a male, or upon the return of the mother from her isolated state, when cleansed and purified, to her home and her family, but will simply call attention to a remarkable feature common to the natives of the coast of Borneo and to some of our Indians. For instance, among the land Dayokas of Borneo the husband is always treated badly after the birth of the child, when he is dieted on rice and salt, and for a few days forbidden to bathe or show his face out of doors; whilst among some of our Indian tribes the father, after calling his relations and friends together and having a feast of boiled dog and other Indian delicacies spread for them, goes off and *cachés* himself until the child is a week old. This practice, however, is only observed by the young men who are so ashamed of the occurrence that they go to some friend and stay until they summon sufficient courage to come back, when the wife presents the child for the first time to its father. The management of the puerperal stage by the Indians of the Pacific coast has been so well described by Dr. J. Fields, formerly of the Grand Ronde Agency, Oregon, that I will quote verbatim that part of his letter referring to this subject. He says:

"The treatment resorted to is not alike in all the tribes; some with whom I have come in contact require the woman to keep on her feet the greater part of the day, taking short walks around the camp and resting only when she becomes very weary; as a support she uses a staff, an instrument through the aid of which relief comes, as the body is frequently bent forward which brings the abdominal walls immediately over the uterus against the upper end of the stick, on which she also holds her hand, as a man walks with a cane; for a period of three or four days the woman continues the prescribed walks, with an occasional hour in a reclining posture to rest her feet; then she is considered well. The object of this, as old women of the tribe informed me, is to facilitate the flow of the lochia; they think that should the woman lie in bed the blood would accumulate in the abdominal cavity and she must die.

From all I can learn about the practice of the Indians here before the white men came among them, their procedure in the after-treatment was solely for the purpose of encouraging a free flow of the lochia, and I hear of no death from hemorrhage.

Those tribes of Indians on the Pacific coast who follow a different course of treatment, place the woman on a bed as soon after delivery as possible, securely wrap her in a blanket or some covering, and place her near the fire, where she is kept in a closely wrapped condition to escape taking cold and having fever; here she is kept for four or five days, when she at once takes charge of the babe and resumes all the duties that fall to the lot of an Indian woman.

During two and a half years' life among the Indians I neither saw nor heard of a case of puerperal fever, puerperal eclampsia, or any diseases peculiar to lying-in women. Neither did a death in labor come under my observation; few women have any mammary trouble, notwithstanding their being exposed to the same cause that is a prolific source of mammary complication among white women."

Management of the Child.

The management of the new-born child is so intimately connected with the treatment of the mother in the puerperal state that the subject would not seem complete without a brief consideration of the treatment of the babe. Although the savage mother is not wanting in love for her offspring, the treatment of the child from the very first moment is one well suited to fit it for the hardships of its future life. Even among those people where kindness is shown the little stranger, where he is well cared for, and not left to starve in isolation with the mother, as among some of the Russian tribes, he receives at once a hint of the exposure to which he may be subjected in the future. As an ancient chronicle and "Early History of Virginia" says, in speaking of the original inhabitants of that country: "The manner in which they treat their young children is very strange, for instead of keeping them warm at their first entry into the world, and wrapping them up in I don't know how many cloths, according to our fond custom, the first thing they do is to dip the child over head and ears in cold water, and then to bind it naked to a convenient board, having a hole fitly placed for evacuation, but they always put cotton wool or other soft things for the body to rest on between the child and the board. In this posture they keep it several months, till the bones begin to harden, the joints to knit, and the limbs to grow strong. Then they loosen it from the board, and suffer it to crawl about, except when they are feeding or playing with it. While the child is thus on the board, they either lay it flat on its back, set it leaning on one end, or hang it up by a string fastened to the upper end of the board, the child and board being all the while carried about together. As our women undress their children to clean and wash their linen, so they do theirs to wash and grease them. The method the women have of carrying their children after they are suffered to crawl about is very particular. They carry them at their backs in summer, taking one leg of the child under their arm, and the counter-arm of the child in their hand over the shoulder, the other leg hangs down, and the child all the while holding fast with its other hand. But in winter they carry them in the hollow of their *match-coat* at their back, leaving nothing but the child's head out." The child is tucked away in an equally peculiar manner by some of the Polar tribes of Russia; until it begins to crawl it is placed in a fur sack, and carried by a strap about the mother's forehead. Later it is sewed up in a fur garment of one piece; for the sake of cleanliness a doorway is left in the posterior portion, which is opened from time to time as necessity demands, but the garment is not once removed or changed until outgrown by the child.

Among the Sioux, Crows, Creeks, and other of our Indians, the mother plunges into the stream with her child immediately after delivery, or, if no running water is at hand, at least dips the child in cold water as soon as it is born; salt water is used by some people who live upon the sea shore, also by the Kalmucks, who wrap the child in furs as soon as it has had a salt-water bath. A cold-water bath seems to be the customary initiation of the new-born child into the troubles of this world; it is the case among most of the Negro tribes, among the people of Bolivia, of Ceram, and of the Andaman Islands, and in some parts of India; in others, in Southern India, for instance, the child is washed in tepid water; so also in Syria, and, as a rule, by those people who are advanced in civilization.

Usually the child is bathed immediately after delivery, but in Southern Arabia at least two hours are permitted to pass by, during which the child is wrapped in soft warm cloths, then it is washed and anointed. This is also the custom of numerous African tribes, some waiting for several hours, others performing the ceremony at once; some use fat, others, such as the Wakamba, Somal, Wanika, and other tribes use fresh butter. The Masai and the Waswaheli throw a slightly acid and astringent powder, made from the fruit of the *adansonia* tree, over the child, to facilitate cleansing, just as we use oil or fat. The Cheyennes and Arapahoes envelop the child as soon as it is born in dry horse manure, and do not wash it for several days. The Umpquas wrap it in dirty rags, and also put it away without washing. In India, in Africa, and among the American Indians, there are many tribes who bathe their children for at least one year. In Syria, in India, and in Africa, there are many who anoint the children regularly, often after every bath, and great attention is paid to the kneading and stretching of the limbs and joints, with the view of making the child straight and strong, and stimulating the healthy development of the muscles. Some strap the child or have various methods of bundling it, so as to carry it conveniently. Some, like the Chinooks, of Oregon, compress the head to shape it in a peculiar way. This method of kneading and stretching the child is well described in a paper on the inhabitants of the Andaman Islands (*Zeitschft. für Ethnologie*, 1877, p. 51). There it is usually done by the father, who warms the palm of his right hand, presses firmly upon the temples and upon the base of the nose, whilst the left hand fixes the lower jaw; then the wrists and elbows and the septum of the nose are compressed between the thumb and index finger, and so on quite a number of manipulations are performed.

It is interesting to see that the same variations exist in regard to their customs as to the *time of applying the child to the breast* which we find among civilized people. Thus among the Kanikars and several other tribes of Southern India the child is applied at once to the breast, as is done by some of our Indians. In Alaska it is customary to suckle the child as soon as it has vomited for the first time; among the Kalmucks the new-born is given a piece of raw mutton to suck, and is not permitted to take the breast for several days. Upon the Andaman Islands it is customary for any neighbor or friend who is suckling to nurse the new-born child for a day or two until its mother's milk appears. In Southern India, the child is fed on boiled honey until the third day, and not until then is the mother allowed to suckle it. In Transvaal, a soft mush is fed to the child for the first three days, and in Loango the same custom prevails, and the people seem to know the qualities of colostrum, at least they make a difference between the milk of the first days and that which afterwards serves for the nourishment of the child. The negroes of Loango hold a suckling child just as the Caucasian mother does, and it seems that the breast is only given at certain times.

As regards the period of suckling, the time seems to vary greatly, yet it is governed by about the same circumstances among all primitive people as it is among our Indians. As a rule, the child is nursed as long as the mother's milk lasts, or until another conception takes place; at all events, the children are nursed unreasonably long. Thus the Kanikars suckle the child for three to five years; the inhabitants of the Sierra Leone often until the child can walk; those of Australia, from one to three years, according to circumstances; the Alaskans, from ten to thirty months; the Tartars and Esthonians, for a very long period, not only limited as it is among our Indians by another conception, but they suckle the child until the next confinement forces them to make room for a younger offspring. The Arabians seem to nurse for a period of perhaps two years; the Waswaheli, from one to two years; in the eastern portions of Africa, it is the custom to nurse as long as the mother's milk will last, and often during the next pregnancy. A child which is nursed during such a period is called an external twin.

For the purpose of *weaning* the child, it is customary in Southern Arabia to smear myrrh or asafetida upon the nipple. The Somal use the fresh juice of aloe leaves for the same purpose, and in Zanzibar, cayenne pepper or the gum of the aloe is applied. In case that the breasts are inflamed during the process of weaning, the natives of Southern Arabia press out the accumulated milk and cover the breasts with a poultice of soft mud or clay.

I have already remarked that insufficient or inferior *food* is frequently a source of injury to the puerperal woman when isolated during her period of uncleanliness, as it is often the cause of sickness and death of the child. This is especially the case among some of the Russian tribes. Convulsions occur frequently among the children who are partially fed with heavy bread which has been first chewed by the mother; then berries of various kinds are given the infants, not even always ripe; they are kept in a filthy condition, and take frequent colds by the use of the steam baths so common among those people. Coarse food and constitutional syphilis are the causes of early death among many of the Tartars. In Alaska, the fat of some sea animal is the first food which is given the infant. The

Masai and several other tribes of Africans put a little fresh butter, which is especially prepared for this purpose, into the child's mouth after the second day. Among the Wakikuyu the child, after the tenth day, receives chewed bananas, which have been mixed with the saliva of the mother, in addition to the butter. The Wakamba give the infant, very soon after birth, a little mush, and the Somal make them take a little of the juice of the myrrh daily after the sixth month has been reached. In case of the death of the mother, the Wakikuyu and Waswaheli raise the child upon goat's milk; other tribes employ nurses, others feed the child upon mush and other food common among them. The Kossacks think wine a necessary addition to the food, even of suckling infants. In Siam, honey and rice-water is given from the first days, and the soft pulp of the banana is crammed into the little mouth. Dr. Shortt tells us that, in Southern India, the child is fed on boiled honey after the third day, when the mother is allowed to suckle it, and if the external parts are cold, five drops of the *milk hedge* (*Euphorbia Firucalli*) are given it. On the third day, it is rubbed with sweet oil, bathed in warm water, and half a pie-weight of garlic, one-quarter pie-weight of black pepper heated in a kin-weight of castor oil is given, and repeated every second day. Some give castor oil every morning for the first, once a day for the second, and every other day for the third month. From the third day the mother suckles the child; if unable to do so, it is brought up on goats', cows', or asses' milk.

The Villees, another of the tribes of Southern India (Transacts. London Ethnolog. Soc., 1865, III.), give the child for the first two or three days a preparation of black pepper, neem bark, jaggery, garlic and onions, several pots full of which are made at once and slowly dished out. In Old Calabar, the child is first rubbed over with fine sand, then with soap and water; the acid juice of an *Ammomum* is squeezed into its mouth, and a supply of tepid water follows, and for the first three days, during which it is not allowed to suck, it gets nothing but water, and later, although the mother has an abundance of milk and the child is well able to suck, a large quantity of water is given at least once a day. Every morning whilst the child is washed, water is thrown into its mouth continually for several minutes, the child gasping and struggling. This, they say, is done to distend the abdomen and make it capacious to take plenty of food, to hasten growth. If the mother is away, the child is kept quiet by filling with water, and they deem this cheap liquid very useful in this respect; although too much water is rarely taken, it may prove injurious, and possibly the enlarged spleen, which is very common among children in this country, and not among adults, may be traced to the over-dose of water.

The Kanikars begin to give rice-water the third month. The child which is nursed from three to five years, gradually, from the third month on, receives other food, but it is not until its seventh year that it eats with the rest of the family. The Vedas simply suffer the child to die if the mother's milk does not suffice, as no other woman dare nurse it, and cow's milk rarely succeeds. After the daily bath, the babe is anointed with oil and turmeric, and rubbed and kneaded in accordance with certain rules, as we have related of other tribes.

Just as adults are treated with the herbs of the country in their various diseases, so the children are made to put up with them. Teething is furthered in Russia by the use of the fresh juice of the lemon sweetened with sugar, or the gums of the child are smeared with the blood which comes from the comb of a black rooster which has been repeatedly scratched and irritated with a comb. In case of restlessness, a decoction of poppy seed is given the child after it has been carried to the ordinary roosting-place of the chickens and kept there for a while. In case of convulsions, a decoction of *Gentiana pneumonanthe* or the root of *Valeriana phec* is used. The powder of *Origanum*, starch, or lint is applied in case of soreness of the skin, and there are many other equally efficacious remedies in use, many of them most amusing and of extreme interest to the ethnologist, but beyond this of little or no value.

CYST OF ANTERIOR VAGINAL WALL,

DEVELOPED FROM GÆRTNER'S CANAL.

BY

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THE patient is a woman forty-one years old, who has been married twenty-four years and borne eight children. She states that she has always enjoyed good health. Three years ago she first noticed a "lump" protruding from the vulva. Her attention was called to it by some scalding in micturition and a necessity for straining considerably at times when desiring to empty the bladder. The swelling gave no pain and could be returned within the vagina. The only trouble it gave her was by "being in the way" when she stood or walked. A few weeks previous to her applying for relief she had experienced, during some exertion, a sharp pain in the lower part of the abdomen, which was followed by fever and she was confined to her bed for several days.

On examination, the anterior vaginal wall was seen bulging out from the vulva and appearing like a cystocele. By palpation the swelling was found to be elastic and fluctuating; about the size of a hen's egg, somewhat flattened antero-posteriorly and larger at its dependent portion. It could be pushed back into the vagina, but the least straining immediately extruded it again. Examination with a sound in the bladder failed to detect any communication between that organ and the swelling, which the introduction of a hypodermic needle demonstrated to be a cyst containing a sero-purulent fluid.

It was situated in the anterior vaginal wall, in the median line. Firm pressure upon it failed to empty it of its contents.

The patient being in Sims' position, the cyst was tapped with a hypodermic needle and emptied. It contained about two ounces of fluid. It was then distended with water to facilitate its removal. An incision was made through the vaginal wall, which was quite thick, down to the cyst, which was then enucleated with considerable difficulty, as it was firmly imbedded in the surrounding tissues. After freeing the lower portion of the cyst, and in order to determine just where its upper point was, an opening was made in the lower end and a probe introduced, which to my great surprise passed in several inches without meeting the slightest resistance. The probe passed towards the patient's left side and its tip was easily felt at a point about on a level with the umbilicus and midway between it and the anterior superior spine of the ilium and apparently just beneath the abdominal walls. By carefully examining the cyst, it seemed to run up and become converted into a tube, and as this evidently communicated with the peritoneal cavity, I tied a stout ligature around it and cut off the lower portion which had been enucleated. The bladder was then carefully explored with a sound, but no opening could be detected in it, and it contained a small quantity of bloody urine which was withdrawn by a catheter.

The point at which the cyst was ablated was just above the reflexion of the vagina from the bladder to the cervix, and the lower end of the cyst was about half an inch behind the meatus urinarius. There was considerable oozing of blood from the bed of the cyst, which was therefore syringed out with hot water and swabbed with iodine and a small tampon of cotton soaked in a saturated solution of alum placed in it. A short time after the operation there was a sharp hemorrhage from the upper portion of the cavity, but as no bleeding vessel could be seen it was controlled by a tampon.

For two days the urine contained considerable blood, but since that time has remained perfectly clear. The patient has had no untoward symptom and is now up and about and feeling quite well. The cavity left by the removal of the cyst is gradually contracting and gives no discomfort further than that caused by a moderate amount of discharge. The portion of the cyst removed, together with the fluid withdrawn from it, I took to Dr. Garrigues, who has kindly made a careful examination of them and given me the following report:

Dr. Garrigues' Report.—"The specimen consists of a long, narrow bag, seven centimetres long, three wide; the walls are in contact, the edges almost parallel, united by a curve at the bottom. At the upper end, where the specimen has been cut off from the body, is found a short neck which is situated towards one of the side edges, so that one of the edges of the neck is a direct continuation of the edge of the body, while the other joins the bag with a sharp curve approaching a right angle. The wall of the body of the bag is three millimetres; the neck is eight millimetres from side to side, and the opening in it measures five millimetres, the walls being in contact. The outer surface of the bag is rough but level, the inner smooth and shining, of a reddish-yellow color, and shows about a dozen recesses. The smaller of these are round and of the size of hemp-seed; the larger form crevices extending in either wall in an almost transverse direction. The whole inside, body, recesses, and neck, is lined with flat stratified epithelium.

Part of the body was treated with Müller's fluid, alcohol and absolute alcohol, and cut transversely. The epithelium has been lost. The rest of the wall is composed of three layers.

The outer layer is rather thick and composed of heavy fibrous connective tissue, the chief direction of the fibres being circular. Prolongations go in between the muscular bundles of the middle layer.

This middle layer is by far the thickest. It is formed of smooth muscle-fibres and may be subdivided in three zones according to the direction of the fibres. Outermost is a longitudinal zone of large bundles cut across on transverse cut. Inside of this is a zone of circular bundles. In both these zones the bundles are thick and packed close together. Innermost are found small bundles separated by much connective tissue and going in very different directions, but mostly longitudinally, as in the outermost zone. Both in the outer layer of connective tissue and in the middle muscular layer are found arteries cut perpendicularly across. Innermost is found a comparatively thin layer composed of connective tissue crowded with small round cells. This layer contains many capillaries, and in some places are seen extravasated red blood-corpuscles.

The fluid contained in the sac was dirty, greenish-yellow, seropurulent, not viscid, of strong alkaline reaction, and smelling of the ether used as an anesthetic.

The quantity at my disposal was not sufficient to ascertain the specific gravity. It did not coagulate spontaneously; and only a little by boiling, even after the addition of acetic acid. The precipitate was scarcely changed by boiling with excess of the same acid. Under the microscope the field was found full of bodies. Some of these were globular cells eight to thirteen micro-millimetres in diameter with a single nucleus. Others were free nuclei with shining or dark granules. Acetic acid did not reveal any multinuclear cells.

The character of the fluid and the condition of the internal or mucous layer show that this membrane was inflamed, and sooner or later an abscess would have been formed.

Cysts in the vagina may have a very different origin. The existence of sebaceous follicles in the vagina claimed by von Preuschen, not having been verified by anybody else, it is doubtful if these are simple retention cysts.

Klebs takes them to be dilated lymph-vessels. Veit has referred to the possibility that vaginal cysts may be due to remnants of the Wolffian ducts. Sometimes they are dermoid cysts. Some of them do not properly belong to the vagina, but start from the perivaginal connective tissue, and may be due to hemorrhagic effusion, or to the formation of a kind of hygroma. Perhaps some are developments of peri-urethral glands. Others seem to be formed originally by a diverticulum of the urethra (see Breisky: Die Krankheiten der Vagina, in Billroth's Frauenkrankheiten, S. 105).

According to Ruge (ibidem, p. 136), they have always columnar epithelium, but in this case the epithelium is composed of flat cells with central nucleus and overlapping one another, the largest measuring twenty-seven micro-millimetres. In a case examined by Mayer (ibidem, p. 132) the inner surface was covered with small-celled flat epithelium, and in recesses were found columnar epithelium. In one case the recesses had flat epithelium.

In this case, I have no doubt that we have to do with a *Gärtner's duct*. It is evidently some long canal, the lower end of which has been especially distended.

It cannot be a ureter, for it did not open into the bladder, nor did the upper part lead to the kidney, but more towards the left *fossa iliaca*, where the sound could be felt through the abdominal wall.

Nor can it be the Fallopian tube, as both the locality and structure differ entirely from that organ.

Gärtner's ducts are found, one on either side of the vagina, in the cow and the swine. Chevan[1] describes them in the cow as mucous ducts opening in the cavity of the vulva, beside the urinary meatus and extending upwards in the lateral parts of the vagina until six or eight centimetres beyond the os uteri.

Milne Edwards[2] thinks that Gärtner's canals are analogous to the peritoneal tubes found in crocodiles. In the penis of the male and the clitoris of the female of these animals, on either side of the dorsal furrow of these organs is found a membranous tube formed by a prolongation of the peritoneum and *opening into the peritoneal cavity*. The lower end terminates as a cul-de-sac near the glans, or opens externally by a small aperture.

Perhaps there existed such a free communication with the peritoneal cavity in this case, at least the sound led by a skilful hand did not meet any resistance.

Gärtner's canal, found normally in some animals, is nothing more than *Wolff's duct*, an organ found in early embryonic life. In man, it is in the course of time developed into the long canal running through the *epididymis* and the *vas deferens*. In woman, it disappears, but Koelliker has still found distinct remnants of these canals in the broad ligament of mature embryos, and Beigel has shown them in an embryo of seven months, running as small epithelial tubes towards the side and somewhat towards the front, in the superficial layers of the walls of the uterus.

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[1] Anatomie comparée des animaux domestiques. 3d edition. Paris, 1879, p. 970.

[2] Leçons de Physiologie et d'Anatomie comparée. Vol. ix. Paris, 1870. P. 68 and Vol. viii., p. 510.

How far they extended downwards could not be seen on the specimens, and it will require an exact and troublesome examination to ascertain when and how they disappear.[1]

I have in vain looked for a detailed description of Gärtner's canal, but the structure of this cyst corresponds entirely with that of the vas deferens: an outer coat of connective tissue, a middle coat of organic muscular fibres arranged in three layers—the outermost with longitudinal fibres; the middle much thicker, with circular fibres, and again an internal longitudinal much weaker than the outer. Inside of this a mucous membrane lined with epithelium. Even the yellow color, characteristic of the *lower part of the vas deferens*, and the diverticula in the wall are present.

The only point which does not correspond is the character of the epithelium.

The vas deferens has columnar epithelium, while our cyst has stratified flat epithelium. But we must remember, first, that we do not know what the epithelium of Gärtner's duct is, and secondly, that we only have the lower and wider vaginal part of the cyst. It may be that the narrow part of the canal left in the subject had columnar epithelium.

In every other respect the analogy with Gärtner's duct, both in regard to situation and structure, is so great that I think there can be no doubt about the identity of the two."

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[1] Koelliker: Entwickelungsgeschichte des Menschen. 2te Auflage. Leipzig, 1879. p. 986.

A REMARKABLE CASE OF EXTRACTION OF A LARGE STONE FROM THE FEMALE BLADDER THROUGH THE URETHRA.

BY
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(With two woodcuts.)

THE interest in the case to which I wish to call attention is not in the size of the stone or its composition, but to the teaching it gives us, as to the practicability of dilating the female urethra in extracting foreign bodies from the bladder.

Is it best to dilate or to cut, in enlarging the urethra for the extraction of foreign bodies through it, in order to avoid the evil consequences of non-retention following these operations? is the open question before the profession for its decision.

The success that has always attended my operations by dilatation—without the use of the knife—has led me to prefer that mode of procedure in the extraction of stone from the female bladder. The following case, though an extreme one, shows to what extent the urethra may be dilated and yet retain its power of contraction and retention afterwards.

In November, 1879, I was called to see Mrs. Tarbutton, aged 28 years, mother of two children, medium height, fair complexion, light hair, blue eyes, spare habit, and of a highly nervous and irritable temperament in her reduced condition. Her husband informed me she had been treated by four irregular doctors for over a year for prolapsus uteri, and that the womb had fallen against the neck of the bladder and prevented her from passing urine without a great deal of pain, and that she was also passing considerable bloody mucus and some sand with her water.

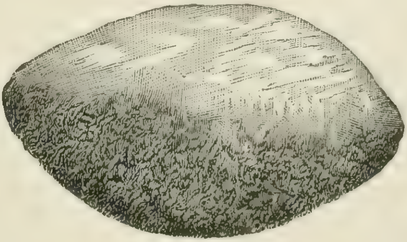
The history he gave me of her sufferings and the procedure of her attending physicians led me to strongly suspect that it was a case of mistaken diagnosis, and that it was one of stone in the bladder. Upon the condition of his dismissing her attending doctors I agreed to see her. I found her in an extremely reduced and nervous condition, so much so that it was some time before I could prevail upon her to allow a digital examination; she stating that the examinations and the efforts that had been made to replace the womb were like death to her. Upon promising to deal gently and tenderly she consented. In passing my finger, I at once detected the enlarged condition of the bladder and its extreme tenderness by the sharp cry of pain when it was touched. By keeping my finger well back in contact with the rectum and away from the bladder, I readily passed it up until I could touch the os uteri, which I found in its natural position and the entire organ in healthy condition.

I now told her that her trouble lay in her bladder and I was almost certain that it was from stone, but wished to introduce a sound to make sure of it. She gave her consent for any examination I wished to make if I did not attempt to replace the womb. The stone was readily found. I then introduced a long, slender pair of forceps—the blades when closed were about the size of a medium catheter—and by gently opening the blades, dilated the urethra sufficiently to introduce one of Molesworth's small-sized dilators, by which means I slowly dilated the passage sufficiently to readily admit my finger. I now introduced a strong pair of stone forceps, readily caught the stone, but, on attempting to crush it, I soon found that I had no instrument with me with which I would be able to break it; indeed, the stone was so large, I feared it would be impossible to extract it without rupturing the sphincter muscle. I proposed dividing it with a knife, but the patient utterly refused, saying, "*You* go ahead and take the stone at all hazards, and I will take care of the retention of urine afterwards." I went on with the operation, determined to proceed with the dilatation to its extreme limit before rupturing the muscle, and then divide by knife if necessary. As I made traction, the angle of the forceps blades in front of the stone acted nicely as a wedge in opening the passage. The muscle, without any great force, yielded to the gentle and steady pressure, letting the stone pass into the canal without injury to its fibres. The difficult point to pass was the meatus. By this time the traction had brought the whole of the stone, covered by the urethra and bladder, to view external to the labia. The meatus was so tightly drawn around the forceps and the stone, as it was now making its appearance to the world, that I thought it impossible for it to pass without rupture; I reached for my knife, but she again utterly refused to be touched by it. So I went to work with my fingers; while making traction to press backward and over the stone, the meatus, just as the obstetrician presses the perineum and soft parts over the head of the fetus as the contractions of the uterus force it forward in the passage, gradually yielded, and the stone passed without rupture. The rough side of the stone, although partially covered by the broad blade of the forceps, had very considerably torn up the mucous membrane of the canal and consequently there was, for a few minutes, quite a hemorrhage, mostly, however, venous. Injections of water to wash out the bladder soon controlled it. The patient was then dried, a napkin placed to her, and she was put to bed.

The operation lasted from forty to forty-five minutes, the process of dilatation going on from beginning to end. Before leaving, about an hour after the operation, I thought best to see that the hemorrhage was safe. I found there was none external, and to be sure there was none internal, I injected some twelve ounces of water to wash out the bladder; none returning, I asked her to pass it. She did so, and passed it through a well contracted urethra, and never afterwards had a moment's trouble from want of retention.

Natural Size.

I heard from her daily for three or four days, and at several days' interval for three weeks. She made a rapid recovery without any medication. I did not see her again for fifteen months after the operation, when she told me that she could not retain her urine quite so long as she had been able to do before she had been taken down with her illness.



Natural Size.

The stone measures, short diameter, 2; long diameter, $2\frac{1}{8}$; flattened diameter, $1\frac{1}{2}$.

The flattened diameter, while, passing, was increased by the blades of the forceps, making it $1\frac{3}{4}$ inches.

Here we have the female urethra dilated without injury, so as to allow a body to pass with a diameter in one way of 2⅛, and in the other of 1¾ inches. In watching the operation, the comparative ease with which the sphincter muscle dilated and let this large body pass, taught me that the danger of rupture commencing in the muscle was slight, but that the danger lay in the sudden giving way of the meatus, leaving the muscle to sustain the entire strain without support from the surrounding tissues.

DOES THE REMOVAL OF A FETUS BY ABDOMINAL SECTION, AFTER A RUPTURE OF THE UTERUS, CONSTITUTE A "CESAREAN OPERATION;"

AND IS IT PROPER TO CLASSIFY THIS FORM OF DELIVERY WITH GASTRO-HYSTEROTOMY, WHICH HAS A DIFFERENT DEGREE OF FATALITY, BOTH AS REGARDS THE MOTHER AND FETUS?

BY

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THIS question presented itself very forcibly to my attention twelve years ago, when I was receiving answers to letters in search of unrecorded Cesarean cases, and examining journals for such as had been reported. My correspondents very soon enlightened me as to the fact that there were many in our profession who regarded the term "Cesarean" as a synonym for laparotomy, etronotomy, gastrotomy, and abdominal section; and gave practical evidence of their views by sending reports of ruptures of the uterus, ventral and tubal pregnancies, and even uterine tumors treated by abdominal section. This forced me to drop the term and inquire for cases of *gastro-hysterotomy*, about which there could be no mistake. When professors of obstetrics, as in more than one instance, could fall into the error of sending me cases of laparotomy after ruptured uterus, and even ablations of the non-impregnated organ, as "Cesarean," I thought it time to cease the use of this title in all circulars of inquiry. It was equally disappointing to find the same title in indices of journals, referring to non-Cesarean cases, and even to opening the abdomen in the male subject.

An experience of twelve years only tends to show how extensive is this error, which is by no means confined to our own country, the *Kaiserschnitt* of the German, and *hystérotomie* of the French, being used to cover cases where the knife does not touch the uterus, as I shall show more pointedly as we advance.

Abdominal surgery is becoming so much more bold and aggressive, as well as complex, than it was a few years ago, that the classifying of the operations, so as to place each special form under its proper heading, is all important. If to constitute a Cesarean section it is requisite that the uterus should be opened by incision, as indicated by the term "gastro-hysterotomy" and "hystérotomie," it is evident that laparotomy after uterine rupture, in which the organ is not incised, is not properly a Cesarean operation, and should be placed in a different class. Besides, what is also to be considered, the Cesarean section is less fatal by far to the infant, and is more fatal to the mother, than laparotomy after uterine rupture.

Much carelessness has crept into the classification of abdominal deliveries, and it has become a common practice to place the Cesarean and non-Cesarean cases in the same statistical table, but usage is not always a criterion of correctness. The effect of this association is to make it appear that the Cesarean operation is much less fatal to the women than it really is, and much less likely to save the children, because of the reduction of the average, by the almost universal fatality of uterine laceration. Possibly as high as seven or eight per cent of the infants removed from the abdomen after uterine rupture may be saved, which is far below that in cases operated upon by gastro-hysterotomy, especially where the knife is used early.

We are beginning to see the effect of this carelessness of classification upon the Porro-Cesarean tables, into which has crept as by almost common consent a form of operation which certainly will not bear the title given by the Pavian Professor to his modification of the Cesarean section. I took a good deal of trouble to ascertain the true character of the operation performed by Dr. Prévôt, of Moscow, in 1878, and to make it known in Europe that it was not a "*utero-ovarian amputation* *as a complement to the Cesarean section,*" but a case of uterine extirpation in a subject upon whom the Cesarean operation had not been performed, the fetus having escaped ten hours before into the abdominal cavity through a rent of the uterus. Here then was a new and distinct form of operation, having no reference to the safety of the fetus, but belonging to a condition in which, as I have already stated, but very few of the children can be saved even by a prompt laparotomy. This was not a Porro case, and only added to the fatality of the statistical record, already loaded down with a long list of deaths in cases giving no promise of success at the time of the operation. My proposition to exclude this, and all such cases, was met with an explanation of the true nature of the case, but not with a rejection of it as should have been done, and it remains as a Porro case in all the European tables, fatal to both mother and child, "cause of difficulty, rupture of the uterus."

If we are to determine the fatality of the Cesarean operation by collecting and examining its statistics, we must have the records set free from all cases not properly *hysterotomic.* We must not forget that the Cesarean operation should, as far as possible, be undertaken in the interest of two lives, in which it differs widely from the section as ordinarily made after uterine rupture. Unless we are prepared to ignore the life of the infant in these cases, it is evident that the two forms of operation should be separated in classification, if we are to determine the rate of mortality to mother and child, and the causes which lead to death. There is too much of a disposition among prominent obstetrical writers and practitioners to undervalue the life of the fetus, and place a low estimate upon its claims to be delivered alive: hence the disposition so prevalent, to destroy the infant by craniotomy, even where there may be little or no additional risk to the mother, in an attempt to save its life by abdominal section.

In my Porro statistics I have thought it due to the operator to make an exception in one case where the uterus was partially ruptured before the operation: I refer to the case of Professor Halbertsma, of Utrecht. Here the pelvis was deformed, the fetus alive, and the uterus virtually closed, although lacerated, as the peritoneal coat of the organ was still complete, and prevented the escape of the uterine contents into the abdominal cavity. The uterus was evacuated by incision in this case, the child saved, and the operation completed as in a Porro section. This then was a gastro-hysterotomy, and entitled to a place as such in the Porro statistics.

The Prévôt and Halbertsma cases were quite different. In the Prévôt, the pelvis was not deformed, the fetus was not in utero, there was nothing to justify the unsexing of the mother, and the child was dead. In the Halbertsma case, all the points were entirely reversed, and in consequence the results were the opposite, the mother and child being saved.

As the statistics of laparotomy, as far as collected in cases of uterine rupture, indicate that the operation is safer for the woman than the Cesarean section, with or without the Porro terminus, it is unfair to science to add its results to those of gastro-hysterotomy and claim the whole as Cesarean, thereby magnifying the proportion of cures. This is shown, not only by our two American tables, but by the results of the operations of the veteran accoucheur Dr. Ludwig Winckel, of Mülheim, Germany, whose first Cesarean operation was made forty-one years ago, when a resident of the little town of Gummersbach, near Cologne, which is located in a region where pelvic deformities, rachitic and osteomalacic, are unusually common, even for continental Europe. Dr. Winckel, it will be noticed, makes no distinction between the Kaiserschnitt and laparotomy, and claims to have performed the former seventeen times, with eight cures. This is distinctly shown in a letter to me, as well as in two pamphlets in my possession more recently received, in which all his cases are reported but two, the results of which he has added in writing. These seventeen cases I have arranged in tabular form, and in the order in which the operations were performed, without any special regard to their Cesarean or non-Cesarean character; first showing in this way the operator's claim, and then analyzing the two classes separately. These cases are certainly very interesting exhibits of the work of one operator. The contrast of his results with those of the Cesareanists of Great Britain is very much in his favor, as a comparison with the work in America is in that of our own operators.

No.	Year.	Operator.	Residence of Patient.	Age.	Cause of Difficulty.	Result to Woman.	Result to Child.
1	1840.	Dr. L. Winckel.	Schwarzenau.	33	Osteomalacia.	Lost.	Alive.
2	1843.	"	Ehberg.	27	Rickets.	"	Dead.
3	1847.	"	Obergelpe.	42	Osteomalacia.	"	Alive.
4	"	"	Hesselbach.	30	Do. and rupture of the uterus.	Saved.	Dead.
5	1848.	"	Hakenberg.	36	Osteomalacia.	Lost.	"
6	1849.	"	Rospe. } The same.	35	Do. affecting a rachitic dwarf.	Saved.	Alive.
7	1851.	"	Rospe. }	37	Do. and rupture of the uterus.	Lost.	Dead.
8	1852.	"	Ohl. 1st Operation.	21	Rickets.	Saved.	Alive.
9	1853.	"	Dümlinghausen.	38	Osteomalacia.	Lost.	"
10	1854.	"	Ohl. 2d Operation.	23	Rickets and rupture of the uterus.	Saved.	Dead.
11	1855.	"	Ohl. 3d Operation.	24	Rickets and rupture of the uterus.	"	"
12	1859.	"	Gummersbach.	37	Osteomalacia.	Lost.	Alive.
13	1860.	"	Windhagen.	?	Osteomalacia.	Saved.	"
14	"	"	Schönebach.	29	Rickets.	Lost.	Dead.
15	1861.	"	Strombach.	26	Rickets.	Saved.	Alive.
16	?	"	Müllenbach.	?	?	"	"
	?	"	Mülheim.	?	?	Lost.	"

Classified correctly, the above cases give 13 Cesarean sections, with 5 recoveries, or $38\frac{6}{13}$ per cent; and 4 laparotomies, with 3 recoveries, or 75 per cent. The infants found alive were 10 for the Cesarean cases, or $76\frac{12}{16}$ per cent, against 0 for the laparotomies.

In 1861, M. Pihan-Deufeillay,[1] whose statistics have often been quoted by obstetrical writers, prepared a paper upon the Cesarean operation, in which he gave a tabular statement of 86 cases, with 50 recoveries. An examination of this monograph shows that but 74 of these cases were truly Cesarean, the balance (12) being laparotomies in lacerated uteri. Of the 74 operations, 39 were successful, or $52\frac{26}{37}$ per cent; and of the 12 laparotomies 11, or $91\frac{2}{11}$ per cent. By the addition of the non-Cesarean list the proportion of cures claimed for the Cesarean operation was increased to $58\frac{1}{7}$ per cent, or nearly 6 per cent additional. The 13 children of the 12 women with ruptured uteri all perished.

It is quite evident that the author of this paper was not in search of a full record of Cesarean cases, as he could have readily added very materially to his collection. He mentions Winckel's cases, Nos. 8, 10, and 11 of my table, all of which recovered, but says nothing of the eleven additional operations then reported. He might also have added the record of Radford and of others known to him, but this would have increased the mortality of the whole list. The inconsistency of his own language does not appear to strike him when he states that *hysterotomie* (incision of the uterus) is the best remedy in cases of uterine rupture where the fetus has escaped into the abdominal cavity.

I now take an illustration from my two separate collections: of the Cesarean operations of the United States and the laparotomies of our country in cases of uterine rupture. Of the first, we have had 122 operations with 51 recoveries, or $41\frac{5}{6}$ per cent; and of the second, 41 operations with 21 recoveries, or $52\frac{1}{2}$ per cent. By the Cesarean operations 56 children were delivered alive, and by the laparotomies only 3. A combination of the two classes would make an unfair statement, as we should then present 163 cases with 72 women saved, and only 59 children, which would be barely one child out of three.

In the Italian record of Corradi (158 cases), and the British of Radford (132 cases), there has been no confounding of the two operations, but all are gastro-hysterotomies. The late additions by the latter have made his collection very complete, and the same form of search will complete that of the former, under Berruti, of Turin, who has undertaken the task at my suggestion. The success of the two countries will probably not vary very materially, although thus far Italy presents the better proportion of cures. These exclusively local records, obtained largely by private inquiry, are all-important for demonstrating the comparative values of the classic operation, and its method of completion, as devised by Porro, and again modified by Müller. Berruti's work will complete the full record of the three large countries, Great Britain, America, and Italy, which collectively have over 100,000,000 of inhabitants. The old plan of research would have made a more flattering record, as the cases in journals are generally the most encouraging, but where truth is sought, results are to be valued as we find them, although we might have hoped for a better exhibit of skill.

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[1] Archives Générales de Médecine, 1861, Vol. ii., p. 304.

It is a mistake to combine the statistical records of several countries into one grand table, as this will not represent the real mortality of any one country in the list. Each nation should be more particularly influenced in opinion by what has been accomplished under favorable circumstances among her own people, and by her most skilful operators. Take for example the records of the Porro operation in all countries (30 saved out of 71) and it appears to be a very formidable modification: restrict the record to Italy (10 out of 30) and it is still more discouraging: but take Austria alone (10 out of 14) and it creates a much more favorable impression. As far as ascertained, a combination of the Cesarean records of America, Great Britain and Ireland, and Italy would give a result in cures but little more in proportion than one-half the percentage of the first alone. But we are not to be governed so much by the general result as by the possibilities under proper preparation and care. Every ovariotomist, with a due feeling of responsibility and desire to save his patients, will try by every available expedient to reduce his record of losses as nearly as possible to that of Dr. Keith or Mr. Spencer Wells. The Italian is not to be influenced so much by the measure of general loss as by the degree of success in the Santa Caterina Hospital, of Milan, where four Porro cases have been saved out of six, and these four in succession after two that died. So also with us at home: we are to measure the value of the Cesarean operation by the cases early relieved by the knife rather than by the whole list, including many sections upon exhausted and almost hopeless subjects.

It has no doubt been a surprise to many to find that a larger proportion of women delivered by abdominal section after uterine laceration have recovered than by gastro-hysterotomy. The recovery of 52½ per cent in the United States is no doubt largely due to the condition of health in the women operated upon. Of the 41 but 2 had deformed pelves, and 6 had small pelves; in the balance, 33, the pelves offered no obstacle to labor. But one woman was dwarfed in height, being 4 feet 10 inches. With the exception of the first two it would hardly be admissible to subject such subjects to the unsexing operation of removing the lacerated uterus with the ovaries, as was done by Prévôt in 1878, and recommended, without knowing that it had been done, by Dr. Federico Alessandrini, of Milan, in 1879. The latter shows by the title of his paper[1] that he considers a laparotomy to be a Cesarean operation. A very common cause of uterine rupture in Europe is pelvic resistance, in women whose uteri are either weakened by disease or become so by pressure against the pelvic brim. In such subjects the ablation of the uterus might be advisable, if it can be established that such a procedure would diminish the risk to life as compared with the ordinary method, and especially by the modification in which the uterine rent is closed with silver sutures. The rupture cases of Winckel were all affected with deformed pelvis, two from rickets, and two from osteomalacia, and yet the two former and one of the latter were saved. Is it at all probable that he would have had any better success by removing the uteri?

There is one very important point to be considered before adopting the modification of Prévôt, and that is the condition of the torn uterus. In a Porro case, the cervix is presumed to be sound, and to offer no special obstacle to constriction, which is far from being the case in many of the subjects of rupture. In the Prévôt case, for example, the cervix was torn through on the left side, and at the time of the operation extended vertically 4¾ inches (12 cm.), the cervix being also swollen to the thickness of a man's wrist, so that the serre-nœud would only control the hemorrhage until the pressure was taken off by the shrinkage of the parts inclosed, when bleeding would again occur, and so on until death took place. A cervix split by laceration, a very common form of rupture, cannot be very well fitted for constriction, as the part below the wire may discharge septic matter into the abdominal cavity through the rent.

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[1] Proposta di operazione Cesarea e di amputazione utero-ovarico nel casi di rottura spontanea o traumatica dell' utero durante il soppraparto. Annali Universali di med. e chirurg. Milano, 1879, pp. 247, 485, and 494.

Post-partum extirpation of the uterus has had a variety of changes since Dr. Porro performed it after a Cesarean section in 1876. On April 3d, 1881, Dr. Federico Fornari, of Ascoli Piceno, Italy, delivered a woman of her second child, which presented by the right shoulder, after much difficulty, by bringing down the head; the fetus was still-born. After removing the placenta, he found on introducing his hand that the uterus was ruptured posteriorly, and that a portion of intestine had entered the uterine cavity. Under the influence of the hand, and excited by a dose of ergot previously given, the uterus contracted violently and forced a loop of intestine through the vulva, which by its color gave indications of being strangulated. Dr. Fornari opened the abdomen, removed nearly a quart of sanguinolent fluid, restored the intestine, ligated the broad ligaments and the uterus through the lower part of the cervix just above the vaginal connection, cut away the constricted parts, and dropped in the stump. Peritonitis set in rapidly, and the woman died in thirty-one hours. No autopsy. Dr. Fornari, although admitting that this was not a Cesarean case, evidently wished the operation to count No. 31 in the Porro list of Italy, to which it does not properly belong.[1] This record has already a dead weight upon it in the losses legitimately credited to it. Dr. Fornari dropped in the pedicle, not from choice, but of necessity, as the cervix, being amputated very low down, the parts were too short to draw them, without too much tension, through the abdominal wound.

Before this method of excision is adopted to any extent, some one in Europe should do what I have done here, ascertain what

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[1] He has corrected his error since this was written.

[illegible]

[illegible]

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[illegible]

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through on the left side, and at the time of the operation extended vertically $4\frac{3}{4}$ inches (12 cm.), the cervix being also swollen to the thickness of a man's wrist, so that the serre-nœud would only control the hemorrhage until the pressure was taken off by the shrinkage of the parts inclosed, when bleeding would again occur, and so on until death took place. A cervix split by laceration, a very common form of rupture, cannot be very well fitted for constriction, as the part below the wire may discharge septic matter into the abdominal cavity through the rent.

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Before this method of excision is adopted to any extent, some one in Europe should do what I have done here, ascertain what has been the mortality after abdominal delivery in rupture cases under the old operation. The few cases of Winckel are valuable as far as they go, but a full record of Germany, France, or Austria would be much more satisfactory. All of the French cases reported by Pihan-Deufeillay were recoveries. Had he made a general search in his own country, instead of picking up a case here and there, his record would now be available in forming an estimate as to the proper method of treating the uterus after removing the fetus and escaped fluids. Three plans now present themselves, and the question is, which has the best prognostic value? 1. Shall we trust to the closure of the uterine rent by the contractile power of the muscular layer of the organ alone? 2. Shall we supplement this by the additional security of suturing the rent with silver wire? Or, 3. Shall we extirpate the uterus (confined to cases of pelvic obstruction) and secure the stump, as recommended by Porro in cases of Cesarean section?

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[1] He has corrected his error since this was written.

In the United States, I believe the questions can be readily answered, and that the operation of Prévôt will very rarely be required. The uterine suture has been tried but once, and answered well, and to judge by its success in Cesarean cases, gives a fair promise of reducing the mortality below its present percentage. Much will depend, however, upon the amount of hemorrhage, the degree of shock, the promptness in operating, and the character of the laceration and tissues torn.

329 S. 12TH STREET, PHILADELPHIA,
June 20th, 1881.

THREE CASES OF COMPLETE PROLAPSUS UTERI OPERATED UPON ACCORDING TO THE METHOD OF LEON LE FORT.

BY

FANNY BERLIN, M.D.,

Boston, Mass.

(With two woodcuts.)

IN most of the various methods of elytrorrhaphy suggested and performed by different surgeons for the relief or cure of complete prolapsus uteri, we see that the main feature of the operation consists in the narrowing of the relaxed anterior or posterior vaginal wall by excision of strips of the mucous membrane, and in cases complicated by laceration of the perineum this narrowing of the vagina is accompanied by perineorrhaphy. It is not my intention to describe, or criticise, the different methods of operation for procidentia uteri; these can be found extensively discussed in the newer handbooks of gynecology, particularly in those of Emmet, Thomas, and Schroeder.

Suffice it here to say that, various and ingenious as many of these methods are, none of them fulfils completely the desired effect. In the majority of cases, a support of some kind is necessary to be applied after the operation, and even this does not always give permanent relief, for the heavy uterus is very apt to crowd down the pessary, and make its way outside through the narrowed vaginal canal.

I wish, therefore, to call the attention of the profession to a mode of operating for this trouble which, although applicable only to a certain class of cases, seems to me to fulfil the desired effect admirably.

I am speaking of the operation for forming a double vagina, performed first by M. Léon Le Fort, in Paris, a short notice of which operation can be found in the *New York Medical Record* for January 31st, 1880.

In an article which appeared in the *Bulletin de Thérapie*, April 30th, 1877, under the head of "Nouveau procédé pour la guérison du prolapsus uterin," the author, M. Léon Le Fort, says that, in almost all cases of complete procidentia of the uterus, it is not the latter organ itself which sinks and appears first, but generally the first thing that is seen to descend is the lower part of the anterior or posterior wall of the vagina, thus forming first a cystocele or rectocele, or often both together; then follows, by a sort of unfolding, the rest of the vagina, dragging along with it the lower part of the uterus, and finally the whole organ.

The author, therefore, thinks that by retaining the two opposite walls of the vagina in contact, and thus preventing them from descending, one anteriorly, and the other posteriorly, the procidentia of the uterus could be prevented.

According to this idea, I have operated, at the New England Hospital for Women and Children, on three cases of complete procidentia of the uterus, and a brief record of these cases, as well as a description of the operation itself, may prove not without interest.

CASE I.—Mrs. T., Irish, seventy-one years old. She menstruated first at fifteen years, married at twenty-three, had given birth to five living children, and had four miscarriages. She had always been healthy and worked hard. The procidentia dated from February, 1874; cause unknown. Different supports to keep the uterus in place were repeatedly tried, but the weight of the organ always forced them out.

When admitted to the hospital, March 12th, 1880, the uterus was found completely prolapsed and very much enlarged. The vaginal portion of the uterus was hypertrophied and the anterior wall of the vagina the seat of a large excoriation, bleeding at the slightest touch. Perineum was intact.

She was ordered sitz-baths and large sachets of cotton and glycerine to retain the uterus in position and heal the excoriated part.

March 26th, the excoriated surface having assumed a healthier aspect, the patient was etherized, and the operation performed as follows:

Patient in dorsal position. The uterus was drawn entirely outside of the vulva, and held by an assistant with a tenaculum. A piece, six centimetres long and two centimetres wide, of the anterior vaginal wall, which covers the prolapsed uterus, was denuded of the mucous membrane in the median line close up to the vulva, vide Fig. 1, A.[1] The uterus then being lifted and turned towards the abdomen, so as to bring the posterior surface of the tumor in view, a similar strip of mucous membrane was denuded from the posterior wall of the vagina, B. This being accomplished, the uterus was replaced just enough to bring the two upper ends of the anterior and posterior denuded surfaces (those nearest to the cervix uteri) in contact, and three sutures were put into the transverse border of the denuded surfaces. Then the lateral borders of the anterior and posterior denuded surfaces were brought together by sutures, which were taken, six on each side, first through the border of the anterior surface, Fig. 2, A D, and then through the corresponding border of the posterior denuded surface BD¹. Similar sutures were taken on the opposite side on the same level CC¹.

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[1] Drawings are copies of those of M. Le Fort.

In a measure, as these lateral sutures were put in and tied, the replacement of the uterus became more and more complete, and when the lateral borders of the denuded surfaces were all sutured, the whole organ was replaced.

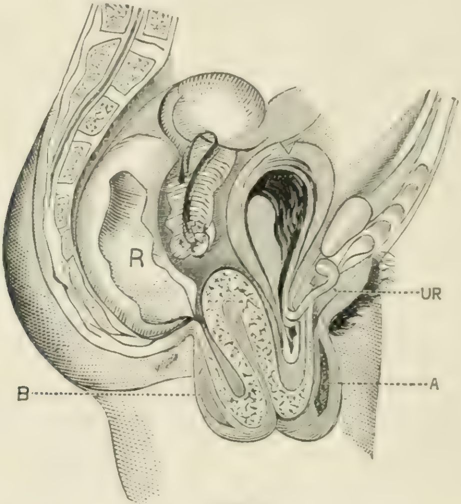


FIG. 1.

I used carbolized silk, and cut the ends short. The vaginal outlet was then denuded, the surfaces approximated and secured by four silver wire sutures. Although there was no laceration of the perineum in this case, the last measure was quite an important one, as will be shown in the next case, when perineorrhaphy was at first omitted.

The patient made an excellent recovery, her temperature but once—on the day following the operation—reaching 102° F.; afterwards it was normal. The silver wire sutures, taken at the vaginal outlet, were removed on the sixth day. Union good. The vaginal sutures were left to slough out. A digital examination, made April 14th, showed a perfect double vagina, the uterus being held up by the strong septum formed by the union of the anterior and posterior walls of the vagina. May 12th, she was discharged from the hospital. I saw her again May 7th, 1881. She was enjoying perfect health, and an examination revealed the uterus in good position, and greatly diminished in size, thus proving the efficacy of this method of operating.

Case II.—The second case was a woman fifty-one years of age, a native of Hungary, who had always been strong and healthy. She menstruated at seventeen years, married at twenty-five, miscarried at three months the first year of marriage, and has never been pregnant since. Still menstruates regularly. Present trouble appeared suddenly, twenty-two years ago, after lifting a heavy piece of furniture. Several unsuccessful attempts were made to keep the uterus in place by means of different pessaries. An operation for narrowing the vagina was performed about ten years since, but this also failed to relieve the trouble. In her first attempt to walk after the operation, the uterus again prolapsed. When admitted to the N. E. Hospital—September 1st, 1880—there were complete procidentia, an unusually short vagina, and a large cicatricial surface on its posterior wall, the result of the previous operation. The operation for double vagina was performed the following day, the same method being pursued as in the previous case, except that no stitches were taken to make the vaginal outlet smaller. Union did not take place. This may have been owing to the lack of support afforded by outside stitches, or to the fact that the patient was attended by a number of different nurses, who, in using the catheter, or giving the vaginal injections, may have disturbed the line of union. An examination

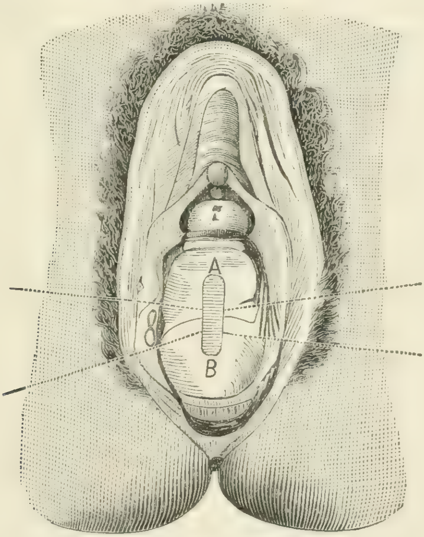


Fig. 2.

made September 11th revealed the uterus lying low in the vagina, and the two denuded vaginal surfaces healing by granulation. The following day menstruation took place, four days before the regular time. As the patient felt well otherwise, she was allowed to get up and walk about. The uterus came out immediately after getting up. September 21st she was again put under the influence of ether, and the operation repeated. Owing to the extensively cicatrized surface of the vaginal walls, they could not be denuded exactly in the median line, hence the two vaginæ were of unequal width. This time four stitches of silver wire were taken in the vaginal outlet, and the result was very satisfactory, union taking place, and the infirmity being entirely relieved. October 26th she menstruated without difficulty. I have watched this patient ever since the operation. Her menses appear regularly without any trouble, and uterus is in good position.

CASE III.—The third case was a Scotch woman, æt. 38, a cook in a restaurant. She began to menstruate at eleven years, married at twenty-two, had two children within five years of marriage. Has never been well since last labor, which was a very hard one, and says that present trouble dates from that time. She was a very delicate-looking woman, but had no organic disease. Perineum ruptured, and uterus completely prolapsed and greatly enlarged. She was operated upon January 8th, 1881, according to Le Fort's method, the operation for laceration of perineum having been added. This patient also made a good recovery. The perineal sutures were removed on the seventh day. Menstruation made its appearance the next day without any difficulty. The vaginal sutures in this, as well as in the two previous cases, partly sloughed out, and were partly removed with long scissors and forceps.

Patient was dismissed from the hospital February 4th, and the last report from her was that she was well and able to work hard.

This mode of operating seems to me a very satisfactory one, as the septum formed by the union of the anterior and posterior walls of the vagina gives a firm and permanent support to the uterus, the cervix uteri resting on the upper bridge in the median line.

The only disadvantage of the operation is that it can be performed in but a limited number of cases, that is, where pregnancy, whether in consequence of advanced age, or for some other reason, is not likely to take place. The number of sufferers of this latter class, however, is large enough to warrant further trial of this mode of operating.

MARTIN'S RUBBER BANDAGE AS A UTERO-ABDOMINAL SUPPORTER.

BY
GEORGE COWAN, M.D.,
Danville, Ky.

(With one woodcut.)

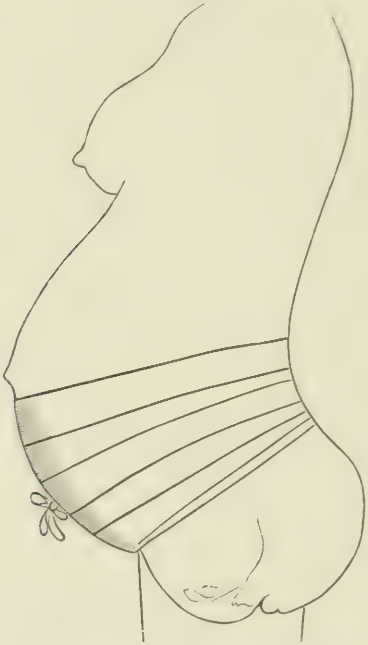
ABOUT two years since, a case of double inguinal hernia came under my care for treatment, for which at the time I could find at hand no suitable truss. Casting about for an apparatus for temporary use, it occurred to me to try the effect of compresses of suitable size and form placed over the inguinal canals, to be retained in place by a Martin's rubber bandage. This I applied so as to encircle the lower portion of the abdomen and the upper portion of the pelvis, crossing the spine in its lower lumbar region. In this way the compresses were held firmly in place, and the lower portion of the abdomen symmetrically compressed upwards and backwards, in an elastic sling, which derived its point of support mainly from the "small of the back," and to some extent from the crest of the ilium of each side.

The bandage when in position, and viewed in profile from the side, showed the turns overlapping each other less widely at the median line of the abdomen, which it covered from the pubes to within an inch or two of the umbilicus; while the greatest overlapping was at the median line of the lumbar region. The last turn of the bandage was secured by tying the tapes attached to its end over it around the body. This cut may better illustrate the plan of the adjustment of the bandage.

To my very great gratification, the apparatus thus devised answered my purposes; completely answering all the indications which a truss could meet. It seemed to keep the inguinal canals closed as much by supporting the abdominal muscles, and by restoring the natural contour to the somewhat displaced anterior parietes of the abdomen, as by the direct pressure of the compresses along the inguinal canal.

It moreover kept in place, fitting into the irregularities over which it is so difficult to adjust a supporter, more perfectly than I had ever conceived that an abdominal supporter could be devised and adjusted to fit. The support, therefore, which was given was an uniform and unvarying elastic support.

It was evident, I thought, that its application as an abdominal supporter was not to be limited to hernia, and I have therefore applied it as an utero-abdominal supporter in obstetrical



and gynecological cases. The only suitable cases in which I have been able to give it a fair trial were in four women in the latter stages of utero-gestation. One was a primipara, the the other three multiparas, and all in moderately good health, but suffering to such an extent from backache, vesical tenesmus, and pains low down in the abdomen and pelvis, as to be unable to be upon their feet except with great pain and effort. In each case the bandage applied as a utero-abdominal supporter gave marked relief during the remaining period of their pregnancies, eliciting from them unqualified expressions of commendation for the support and comfort afforded.

In cases of displacement, where it is proper to combine pessaries with utero-abdominal support, I do not think a more perfectly fitting supporter can be had. There is, however, one drawback to its use. The rubber, of course, does not allow the escape of the perspiration, which accumulates very unpleasantly in warm weather. This can be overcome to some extent by interposing a layer or two of suitable linen or cotton goods, which should be frequently removed by the patient, who will readily learn how to apply the bandage herself with a little help from her physician.

The size of the bandage used I cannot now give in the exact figures used by Dr. Martin to describe them, but it was of the broadest and thickest sizes in which he has manufactured them.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF NEW YORK.

Stated Meeting, December 21st, 1880.

Dr. James B. Hunter, *President, in the Chair.*

RETAINED OVUM.

Dr. A. J. C. Skene presented a specimen with the following history. A woman, who had borne several children and had several miscarriages, supposed herself to be three months advanced in pregnancy, and on the 8th of last September had another miscarriage. From that date she had had more or less of hemorrhage, at no time had been entirely free from it. At the time of the miscarriage scarcely any loss of blood occurred. On the 21st of December he was asked to examine the patient, when he found a mass presenting within a dilated cervix, and it was readily removed. It was not entirely detached from the uterus. When it was removed about an ounce of dark-colored blood was discharged from the upper part of the uterus, which evidently had been retained for some time. The mass had the appearance of a portion of an ovum. Dr. Skene thought it might have some interest as showing how long an ovum, or a portion of it, can be retained without giving rise to very serious hemorrhage. The loss of blood had been sufficient to reduce the patient, but not to a marked degree.

Dr. W. M. Chamberlain thought that the mass presented more of the appearance of a proliferation of some kind than of any part of a normal ovum.

MULTILOCULAR CYST OF THE OVARY DISCHARGING PERIODICALLY INTO THE ABDOMINAL CAVITY; OPERATION; RECOVERY.

Dr. J. B. Hunter presented an ovarian tumor accompanied with the following history. Five weeks previously a woman entered the Woman's Hospital with an abdominal mass that had all the appearances of an ovarian tumor. She was placed upon preparatory treatment, and at the end of three weeks, when ready to operate, it was found that the tumor had disappeared. Thinking that it might be an ovarian tumor, and no further trouble might ensue, Dr. Hunter postponed the proposed operation. In the course of ten days the sac had again begun to fill, and at the end of a week the tumor was as large as at first—the abdomen measuring forty inches in circumference. Three days before the operation it was noticed that the tumor had diminished somewhat in size, and on the day of the operation it had again disappeared. It was evident that there was fluid in the abdominal cavity, and although Dr. Hunter was unable to detect anything like a solid tumor, he thought it best to open the abdomen, when the large mass presented was found. There was a cyst which contained a rent two or three inches in length. The quantity of fluid in the abdominal cavity was about one quart, thick and glossy. The contents of the more solid portion were too consistent to flow through the trocar. The woman had done perfectly well since the operation. The pedicle was small and involved the right ovary. The left ovary was very small, and the uterus was atrophied.

Dr. Garrigues had examined the specimen and reported that it was a glandular multilocular cyst of the ovary.

Dr. J. Foster Jenkins referred to a case which he observed many times in the course of several years. The abdomen of the lady would become enormously distended with fluid, there would then occur an apparent rupture of a sac, and, for two or three days she would void urine of a low specific gravity in large quantities, and then the fluid in the tumor would gradually re-accumulate. Those phenomena were repeated probably fifty times within fifteen years. An autopsy was finally made by Dr. March, of Albany, who found an ovarian tumor.

Dr. Garrigues remarked that he had seen ovarian tumors reduced an inch and a half, on a level with the umbilicus, by the internal use of salicylic acid, and the diminution in size was attended by profuse diuresis.

He also referred to a case in which Dr. Bozeman drew about *three* ounces of fluid from an ovarian cyst, and the circumference of the patient afterwards diminished by two inches. Five or six days later she was operated upon, when it became evident that the fluid had escaped into the peritoneal cavity, and yet there was no trace whatever of peritonitis.

FIBRO-CYSTIC TUMOR; LAPAROTOMY; RECOVERY.

Dr. T. Gaillard Thomas narrated a case as follows :—A woman came into his service in the Woman's Hospital with a tumor, estimated to weigh thirty-five to forty pounds. The tumor gave the sense of fluctuation and absence of resonance on percussion. At first he thought it was ovarian, but upon more careful examination he was led to doubt the correctness of that diagnosis, and suspected it was a uterine fibro-cyst. When he operated he announced that it was but an explorative incision, which was made to give the patient the benefit of a doubt. He tapped the tumor with the trocar and canula, and drew off about a quart of bloody serum. As he proceeded with the operation he found that the tumor was an immense solid one, and that the cyst which had been evacuated was in its anterior portion. It was evidently a fibro-cyst, and the question was whether it was uterine or ovarian. With reference to the operation his experience had been, in laparotomy for any purpose, that with every quarter of an inch which the abdominal incision had been extended towards the diaphragm the danger to the patient had been markedly increased. He therefore tried to remove the tumor through a small opening in the abdominal wall. The exploratory incision was extended to probably three inches in length. He then seized the solid tumor with a tenaculum, drew it to the mouth of the opening, and, with curved scissors, cut out a piece, and so continued to drag the tumor forward and remove piece after piece until, perhaps, twenty were removed, when he was able to pull what remained through the opening and then found a small pedicle growing almost exactly from the fundus of the uterus. He was unable to find the ovaries. Everything in the pelvis was bound down, but the tumor had no pelvic attachment. He tied the pedicle and divided it, and then discovered that a layer of intestine, perhaps two or three inches square, was attached to the surface of the tumor. He carefully removed the intestine with the handle of the scalpel, endeavoring to leave a little of the wall of the tumor upon its surface, and returned the whole to the peritoneal cavity. The patient did perfectly well after the operation. The tumor had been examined microscopically by Dr. Garrigues, who regarded it as a fibro-cyst of the ovary; by Dr. Welch, who thought it was a fibro-cyst of the uterus, and by Dr. Peabody, who said it was impossible to tell whether it originated in the uterus or in the ovary.

Dr. Garrigues remarked that he had no doubt it was an ovarian tumor. He regarded it as the second which he had seen, although fibro-cyst of the ovaries had not been described by any writer. In both cases he based his diagnosis upon the character of the epithelium found upon the outer surface of the tumor. He regarded the presence of columnar epithelium as entirely conclusive that the tumor was ovarian and not uterine.

Dr. Thomas remarked that when the tumor was removed it had no attachment whatever except to the fundus of the uterus near its centre, and by a pedicle about the size of two fingers. Certainly, if it was ovarian it should have been attached to the ovarian ligament.

Dr. Garrigues remarked that he was unable to find any trace of the interlacing and concentric arrangement of fibres always seen in fibroid tumors of the uterus.

EPITHELIOMA OF THE CERVIX—CHIAN TURPENTINE.

Dr. W. M. Polk reported a case of well-marked epithelioma of the cervix, in which while the patient was taking Chian turpentine in doses of twenty-five grains daily, the disease had not advanced and the woman's general condition had improved. She had taken the remedy about eight months, and during the last three months she had lost only about the normal quantity of blood in each month; whereas previously she had suffered from frequent and profuse hemorrhages. When he examined the patient in May and in September last, the excrescence had the usual features of a cauliflower growth ; but when examined December 20th the surface of the growth, instead of being divided into small lobules, presented only about half a dozen distinct nodular masses, quite smooth, which did not bleed upon the slightest touch as heretofore, and yielded only a small quantity of blood upon quite rough manipulation. He wished to report it simply as a case in which the patient, while taking Chian turpentine, and having the rest afforded by a hospital, together with vaginal injections, had improved as described. But is such a result common ? He had no idea, however, that Chian turpentine can cure cancer.

Dr. Skene referred to two cases of cancer of the uterus which he had seen in consultation, and both patients took Chian turpentine, one for *six* months and the other for *three* months, without producing any noticeable effect.

He further remarked that it was exceedingly difficult to tell whether or not any drug exorted a beneficial influence in malignant disease ; because in many cases the disease apparently comes to a standstill, and sometimes remains so for months. Analogous facts are seen in connection with phthisis, where the local condition of the patient remains stationary as far as we have any means of knowing, perhaps the general condition improves and suddenly the case progresses rapidly to a fatal termination. He had noticed this peculiarity in many cases of cancer of the uterus long before Chian turpentine was known as a remedy.

SPONTANEOUS INVERSION OF THE UTERUS IN A VIRGIN.

Dr. W. M. Polk narrated a case which had been under his observation during the last eight months. A woman who was thirty-five years old, single, and had neither borne a child nor had a miscarriage, presented herself with what at first he supposed was prolapsus, but he soon discovered that it was an inverted uterus. She was rachitic, and had a deformed pelvis. He had not been able to find any cause for the inversion, and had utterly failed in all his attempts at reduction.

DROPSY OF THE FALLOPIAN TUBE.

Dr. Skene related a case with the following history. A woman was sent to him by her physician because of some pain and tenderness upon the left side of the pelvis, which was supposed to be due to some subacute inflammatory trouble. Upon examination Dr. Skene found, as he supposed, thickening of the broad ligament upon that side, and treated her accordingly. Some time afterwards the uterus began to discharge a large quantity of clear fluid, and that continued for several months, sometimes profuse, sometimes not much would flow, and occasionally the discharge ceased for several days and then returned in free quantity. Dr. Skene presumed it to be a case of dropsy of the Fallopian tube, perhaps as the result of subacute salpingitis. As the patient had much pain and was greatly annoyed by the profuse discharge, he advised that the mass be punctured with a small aspirator needle, and subsequently, if found necessary, to repeat the operation and follow it perhaps with an injection of a small quantity of iodine. The attending physician drew off about *one ounce* of fluid and injected the cavity with carbolized water. The operation was repeated about two weeks afterwards and a small quantity of iodine thrown in, which set up some excitement for a time, but it soon subsided. The character of the case, however, was not changed. A transparent, somewhat tenacious fluid could be seen flowing from the cervix, and when he examined last, there was upon the left side of the pelvis a mass of about the same size, outline, and consistence of the fundus of the uterus and somewhat elastic to the touch. He had in view the opening of the mass, stuffing the sac, if one was found, and in that way endeavoring to secure its obliteration.

Stated Meeting, January 4th, 1881.

DR. H. D. NICOLL, *Vice-President, in the Chair.*

OVARIOTOMY OF AN ADHERENT TUMOR WITHOUT A DRAINAGE-TUBE.

DR. G. T. HARRISON gave the history of a case, of which the following is an abstract. A women, æt. thirty-four, married fourteen years, the mother of one child, had had one miscarriage, and had been sick one year when she was admitted to the Woman's Hospital, November 23d, 1880. Menstruated at the age of twelve. General health and appetite good. Five years ago, had a miscarriage, and since that time has not been well. She came to the hospital with an abdominal enlargement, which was diagnosticated as ovarian in character. Ovariotomy was performed by Dr. Emmet on December 28th, 1880. The abdominal incision was four inches long. The tumor grew from the right ovary, and was more or less adherent, but the adhesions were easily broken up. Soon after the operation, the patient was unable to retain anything in her stomach, and rectal alimentation was resorted to. The temperature showed a constant tendency to rise, but was kept down by the cold douche frequently repeated. She died from acute diffuse peritonitis January 2d, 1881. At autopsy, evidences of recent peritonitis were found. The edges of the abdominal incision were agglutinated, exept at the lower portion, where two sutures had been removed. At that portion the edges of the wound were coated with a greenish, purulent material. There were evidences of perimetritis, and old cellulitis.

Dr. Harrison remarked that, at the time of the operation, the question arose whether or not a drainage-tube should be used. Dr. Emmet decided not to use it, and afterwards repented, thinking that, had the tube been used, perhaps the result would not have been fatal. Dr. Emmet attempted, on the third day, to open the wound, so as to introduce a drainage-tube, but was unable to do so, chiefly because of adhesions. He further remarked that the autopsy afforded an opportunity to study para- and perimetritis. There was evidence of old cellulitis, and there was also an incapsulated collection of pus.

DR. WARD remarked that he had never seen bad results depending upon the use of the drainage-tube in ovariotomy, and his observation was made chiefly in cases which he had seen with Dr. Thomas.

Dr. Nicoll remarked that it was much easier to introduce the drainage-tube at the time of the operation than subsequently; and he also believed that the effect at its introduction, at the end of twenty-four or forty-eight hours, added much to the danger of the patient, while at the time of the operation it could be introduced without incurring any additional risk.

DANGERS FROM VAGINAL INJECTIONS.

Dr. W. M. Chamberlain referred to two cases in which he had seen perimetritis follow promptly the use of vaginal injections of water at a temperature of 104° F. He asked for the opinion of members concerning the innocuousness of the procedure.

Dr. Ward referred to a case in which death was believed to be due to peritonitis caused by the passage of fluid through the Fallopian tube produced by a vaginal injection, and suggested that the same thing might have occurred in Dr. Chamberlain's cases.

Dr. Chamberlain remarked that there was no evidence whatever in either case that the uterus had been injected. To avoid that accident, he always required the patient to take the precaution to receive the injection whilst in the sitting posture, and use a tube without a terminal opening, and with a reverse current. He thought the result in his cases was due directly to the effect produced by the hot water on the inflamed tissues.

Dr. Mundé referred to Dr. Emmet's book, in which it was stated that unpleasant symptoms, such as pain, etc., frequently follow the hot-water vaginal injections, and he had seen cases which corroborated that view. He thought that cases in which hot-water vaginal injections could not be used were frequent, but he had not seen cases in which inflammatory processes had been caused by the measure.

Dr. Dawson and Dr. Mundé both thought that the sitting posture favored the introduction of fluids into the uterus.

Dr. Chamberlain again remarked that he was confident no fluid entered the uterine cavity. In one case it was impossible, because of the degree of stenosis of the cervical canal.

Dr. Frank P. Foster remarked that he was particularly interested in Dr. Chamberlain's case, in which there was stenosis, because it confirmed the opinion which he had long held regarding the dangers of vaginal injections used in the ordinary way, whether of hot or cold water, or in whatever position of the patient. It did away entirely with the theory that safety is to be obtained by dispensing with the terminal orifice in the tube. He had seen a number of cases in which hot injections gave discomfort, either by producing pain or reflex disturbances, but had not seen inflammatory trouble produced by them. Entrance of water into the uterus he regarded as one of the least of the dangers from vaginal injections. Evil results are seldom due to the direct entrance of the stream into the uterine cavity. In the first place, the cases are not common in which the axis of the uterus coincides with that of the vagina, and at the same time there is such an amount of patulousness to the orifice of the cervix that it would be an easy matter to introduce the nozzle of a syringe into the uterus.

What he believes happens is this: The muscular and other structures about the terminal portion of the vagina are, in some instances, easily excited to spasmodic action, as the result of injection, and the orifice contracts spasmodically upon the nozzle. The pain experienced is caused by the stretching of obscure adhesions in the parametrium by this dilatation of the vagina. In a great many cases, perhaps a majority, the vagina still contains a considerable quantity of water after the nozzle has been removed, without reference to the posture of the patient, and it is kept there by the spasmodic muscular closure of the orifice of the vagina. It was with that idea in view that he had a double nozzle constructed, U-shaped, and having an aperture near the bend, and looking towards the opposite arm of the tube.. One arm is free, and the other connected with a syringe-pipe.

Dr. Mundé thought that Dr. Foster's view was pretty and ingenious, but only theoretical, for he did not believe that adhesions are present so frequently, when they cannot be felt, as the theory demands.

Dr. Foster also states that the possibility of injecting the uterus is not a very common one, but in 119 out of 700 women who had had children, Dr. Mundé found the os sufficiently patulous to allow a stream to be thrown directly into the cervical cavity, and in many of them, through the internal os.

That fluid is retained in the vagina is unquestionable, but he did not think the vaginal orifice contracts to retain any such quantity when the patient was either standing or sitting, as when lying. Dr. Mundé especially objected to the theory that injections from a fountain-syringe employed in the usual manner produced such a degree of distention as Dr. Foster had claimed.

Dr. Cleveland remarked that in the Woman's Hospital it was the invariable custom to put certain patients upon the use of hot vaginal injections twice a day, and he had not heard of any evil results following the method of treatment. The patients are usually placed upon the back when the injection is given.

Dr. Ward thought that Dr. Foster's theory was untenable, and that Dr. Chamberlain's case may have been one of coincidence.

Dr. Chamberlain remarked that he had found it invariably necessary to depress the perineum after washing out the vagina, otherwise the cavity of the pelvis would remain full of fluid, and he would lose the advantage to be derived from the use of the injections in the puerperal state. He admitted the stricture of Dr. Ward as to the possibility of direct violence being done by the tube while the patient is in the sitting posture, but in his two cases no such thing occurred.

Stated Meeting, Jan. 18th, 1881.

DR. JAMES B. HUNTER, *President, in the Chair.*

DR. MUNDÉ presented a specimen of

RUPTURE OF THE UTERUS DURING LABOR.[1]

DR. GARRIGUES concurred in the opinion of Dr. Mundé, that as soon as the contraction of the pelvis was discovered it would have been proper to perform craniotomy, but he thought the possibility of saving the lives of both mother and child should also have been taken into consideration, and in that connection he should think gastro-elytrotomy much less dangerous than laparotomy.

DR. POLK thought there could be no question as to the propriety of performing craniotomy in a case where the pelvis was only two inches and a half in diameter.

RETAINED FETUS.

DR. WATTS exhibited a specimen with the following history: About three weeks ago, a lady, a former patient of his, came to see him, saying she supposed herself to be about six months pregnant, but that she felt differently than she had ever felt before under similar circumstances. She menstruated last in the early part of July, and then she had nausea, and such signs of pregnancy as she had been accustomed to on previous occasions. At a time when she considered herself two months pregnant, she was out riding, and met with an accident: the horse ran, and she jumped out and struck against a fence with her abdomen. She felt no inconvenience from it except a bruise, and thought nothing of it. Time went by until she expected to feel signs of life in the fetus, but felt none. She did not feel exactly well, but had no particular symptoms, and continued thus until she finally came to him to learn whether she was really pregnant, or whether there was something else the matter with her. He made a digital examination, found the uterus enlarged, but the cervix not very soft. The enlargement of the uterus could also be felt through the abdominal walls, but no motion could be detected, and auscultation revealed no fetal heart-sounds. He advised her to keep quiet and wait. On the 7th of January, she arose feeling about as well as usual, and suddenly was taken with pain which lasted for two or three hours, when she was delivered of the fetus he then presented. In the emergency a neighboring physician was called in, who reported that the labor was completed without difficulty. The patient had remained well since. Dr. Watts thought the fetus looked peculiar, but whether or not it was really a monstrosity he was not prepared to say. If the patient's account was correct, it had remained dead in the uterus about four months without producing any disturbance.

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[1] See ORIGINAL COMMUNICATIONS, April number.

HERMAPHRODISM.

Dr. T. A. Emmet saw, a few days before, an individual whose sex he was unable to determine, though apparently a woman. She had never menstruated. There were certainly two testicles, one in each labium, which latter were not unlike a thickened scrotum. A sound passed through the meatus urinarius into the bladder. There was no uterus, and of course no ovaries could be felt; and there was not the slightest appearance of a vagina. The clitoris was larger than usual, but not at all in proportion to what seemed to be the testicles. She was sometimes conscious of a discharge after an erection of the clitoris, but there was no perforation of the clitoris as in the penis; the discharge came through the urethra. Her hips were small, and she padded to give herself the shape of a woman. She associated with women, and did not know otherwise than to do so, although she had a feeling that she was unlike other women. What was quite peculiar was, that she had a sister or a brother in exactly the same condition. Photographs will be taken, and a further examination of the case made.

Dr. Mundé asked if there was any peculiarity in the shape of the epididymis and testicles.

Dr. Emmet thought the testicles were smaller than they should be in a man twenty-two years of age.

Dr. Mundé said that there are on record three cases of individuals apparently women, having the voice, breasts, shape of the pelvis and limbs, and the external genital organs of women, but with no uterus or ovaries, but two bodies, one in either labium which might be taken for either testicles or ovaries, and a microscopical examination of them showed that they were testicles; thus the limits of masculine hermaphrodism are pretty broad.

ARTIFICIAL RESPIRATION IN THE STILLBORN.

Dr. Rodenstein presented an instrument to produce artificial respiration in cases of stillborn children. It was made, at the suggestion of Dr. Dipp, of Freiburg, Germany, by a party in this city. It consisted of a double bellows with a double valve.

Dr. Garrigues thought that in using artificial inflation of lungs we are apt to use too much force, and this danger is greater when we use instruments. It is safer to blow with our lips through a tube, and express the air again from the lungs by compressing the thorax.

Dr. Polk remarked that, in an ordinary lecture on artificial respiration as applied to asphyxiated children, lecturers usually restrict themselves to the consideration of the Marshall Hall, the Sylvester, and the Schultze methods, which have become popularized, and there seems to be a disposition on the part of writers and teachers to avoid saying much with reference to *catheterism of the larynx* as a means of resuscitating asphyxiated children. He would like to hear the experience of those present in the use of the catheter in these cases, but first narrated a case in his own experience as follows :—He had at his clinic last spring a child subject to laryngismus stridulus, and in making out sundry points of differential diagnosis, he imprudently introduced his finger into the child's throat and brought on a spasm. He did all he could to revive the child by the Schultze, the Marshall Hall, and the Sylvester methods, but did not succeed. The child became completely cyanosed, and presented the blue appearance of children that have died of cyanosis. As a last resort he attempted to introduce a soft-rubber catheter, the first that could be obtained, but failed. In the mean time an ordinary silver catheter was brought him which he managed to pass into the larynx and through it he inflated the lungs. He was satisfied that, had it not been for the catheter, the child would have died, because respiration had entirely ceased, and there was only a very small flickering heart-beat, and no power other than the introduction of the catheter could possibly have revived respiratory action.

Dr. Walker thought that in the asphyxia of new-born children the most efficacious remedy is the faradic current.

Dr. Polk asked, if that be true, why should it not produce respiration in a case of opium poisoning? And yet he, and he doubted not others, had seen cases of opium poisoning in which the patients died despite the application of the faradic current, not a single respiratory muscle responding to it. Such cases, however, die by a method of asphyxia. And another objection to it was, that it would be adding more to the already too large paraphernalia of the obstetrician, and these cases occur often when electricity cannot be had. But the point he wished particularly to call attention to was, that the catheter had been objected to because there is danger of producing with it considerable injury to the vocal cords and surrounding tissues. He thought the damage done by a catheter with a round point was trivial ; and he also believed that those who had labored in these cases with the Marshall Hall method, the Sylvester method, etc., without avail, and had then resorted to inflation of the lungs by means of the catheter and succeeded, would consider the latter the preferable procedure.

Dr. Walker recalled a case, which perhaps had been reported acted directly through the phrenic nerve upon the diaphragm it mattered little practically, as long as the diaphragm was made to act.

Dr. Mackenzie wished to know the effect of the faradic current upon the heart in asphyxiated children, and for this reason: a short time before, he, with two of the best known surgeons of the city, attended a case of chloroform poisoning in a young child. The battery was suggested, but utterly ignored by them as being a very dangerous remedy to use, perhaps the most dangerous, because, said they, it interferes very much with the action of the heart, and very seldom produces any contraction of the diaphragm.

Dr. Polk thought the question could be very easily answered; we know perfectly well that the faradic current has not the slightest action upon the heart when applied to the surface of the body. It may be so applied any length of time, and its action directly upon the heart amounts to nothing. If it could be brought to act directly upon the pneumogastric nerve, a very material action upon the heart might be expected. He therefore saw no reason whatever why the faradic current should not have been used in the case referred to by Dr. Mackenzie. He quite agreed with Dr. Garrigues that the action of opium poisoning is not exactly analogous to that of carbonic acid poisoning, but we know that if, in cases of opium poisoning, respiration can be kept up sufficiently long to allow the kidneys to eliminate the poison and thus relieve the heart and spinal cord of the direct action of the poison, life can be preserved. In opium poisoning, we have to make efforts to keep up artificial respiration, for, when fatal results occur, the patients die in a state of asphyxia; that is, of paralysis of the medulla oblongata, and especially of that portion which presides over respiration. Clinical history proves this. Undoubtedly the medulla also presides, to some extent, over the action of the heart, but the heart possesses a ganglion of its own which enables it to continue to act for a while independently of the medulla centre. Not so with the lungs. If, therefore, artificial respiration can be kept up for a time by means of the catheter, we have another means for resuscitating such patients.

The President said the late Dr. Blake reported a case, some years ago, of opium and aconite poisoning, in which he kept up respiration for eighteen hours by means of the faradic current alone.

Dr. Polk did not doubt that electricity would often keep up respiration in poisoning by opium, belladonna, etc., but it always seemed to him to act simply as a surface stimulant, like the cold douche, etc., which also often succeed. If electricity acted through the phrenic nerves alone, it would have to be applied to both in order that the diaphragm should contract efficiently. He therefore believed the inferences drawn with reference to the action of electricity upon the diaphragm in such cases were inconclusive.

Dr. Beverley Cole, of San Francisco, being invited to speak on the subject, said he had little to add. He agreed with Dr. Polk measurably with reference to the action of the faradic current. He was disposed to ascribe its influence to action upon the muscles of the chest, the intercostals, etc., rather than upon the diaphragm. Practically, however, it made little difference; the result is obtained. He had been much interested in the discussion regarding the use of the catheter, but was yet unable to understand, from what had been said, its mode of action. It is true, it furnishes a passage for the admittance of air to the lungs, but he understood Dr. Polk to say no other means were used to produce artificial respiration after the catheter was introduced. But the glottis was relaxed, and there was no reason why air should not be able to enter the lungs without the catheter, and, of course, in asphyxia the object was to cause the entrance of oxygen into the circulation by way of the lungs. He did not understand how breathing into the air passages of the child would resuscitate it, for oxygenated air, or atmospheric air, is what is wanted, and that coming from the lungs of the operator contains carbonic acid. He had never had any success by using his own mouth applied to that of the child, but had succeeded very many times by the use of the galvanic battery, and also with the Marshall Hall method, the Sylvester method, etc., together with friction, etc.

Dr. Polk said it was a mistake on his part if he led them to suppose he did nothing after introducing the catheter in the case referred to, and that the child was thereby alone resuscitated; he breathed into the child's lungs through the catheter, and then compressed the chest to expel the air, and this was repeated. He did not remember the exact condition of the air as it comes from the lungs, but he believes it contains a considerable proportion of oxygen with the carbonic acid; a sufficient amount at least to resuscitate the child in this instance.

Dr. Foster thought it not necessary to insufflate the lungs of the child with the air from the operator's lungs, but simply with that which was in the mouth.

Drs. Cole and Polk considered that the better method, but thought the method employed by Dr. Polk in this instance, viz., insufflation of the child's lungs with breath coming from his own, is more commonly employed.

Dr. Garrigues never brings his lungs into play at all in such cases; but simply the cheeks, thus causing to enter the child's lungs almost pure air, and avoiding extra force, which would be likely to do injury. Experiments showed that air taken from different parts of the respiratory passages contains varying quantities of carbonic acid, that in the mouth containing the least.

Dr. Rodenstein said that the objection to the bellows, that with it one is liable to use too much force, applies equally to the use of the catheter, and even to the application of the mouth to the mouth of the child. With regard to the use of the catheter, he once found it unsuccessful. He worked with the child for fully an hour, trying the Sylvester method, etc., and then introduced the catheter, and that failed. He then gave hypodermic injections of brandy into the muscles of the chest and the child soon began to respire. He acknowledged a fault, however, in that he over-did the matter, over-stimulated the child, and it died within twenty-four hours of convulsions.

SARCOMA (?) OF THE UTERUS.

DR. MUNDÉ narrated a case with the following history. Three or four years ago, a lady about thirty-eight years of age came under his care, suffering from chronic inflammation of the pelvic cellular tissue and areolar hyperplasia; the chief symptoms were sacralgia, backache, headache, and general neuralgic pains. He treated her in various ways, but was unable to give more than temporary relief. She subsequently fell into the hands of a notorious female quack, and continued under that person's treatment a long time, and for a portion of the time with apparent benefit. Her treatment consisted in the introduction of the speculum about twice a week, the application of powdered sanguinaria root, then the introduction of cotton, and myrrh, and hot injections. Dr. Mundé did not see the patient professionally again until about six months afterwards, when he was sent for, and found her flowing, with fever, and much exhausted. He found the uterus considerably enlarged, and suspected pregnancy, but the patient was sure she was not pregnant, for she had used, as a preventive, an instrument recommended to her by her former physician. Under treatment she became quite comfortable within two or three days, although still in bed. About this time, when leaving the house, he was called back, and she said she felt that something had come away. He examined it as it lay on a napkin, found it to be of about the size of a fig, and so much like placental tissue that he thought her little preventive must have had a hole in it. The next day something more came away. He scraped out the uterus with a curette and gave the specimens to Dr. Heitzmann for microscopic examination, who pronounced them round-cell sarcoma of the most malignant type. The uterus was very sensitive, and no local treatment but a wash was used. She got along well. He subsequently took her to Dr. Thomas in consultation, who gave a very unfavorable prognosis, based upon the microscopic examination. But the patient is better to-day than then, and has not had a recurrence either of the tumor or of the hemorrhage, and certainly, so far as one can judge by general appearances, she has no malignant disease. That was about two years ago.

THE PRESIDENT said that the round-cell sarcomata are not generally of the most malignant kind.

Dr. Mundé said these were pronounced to be of the small-cell kind.

Dr. Mann said the small-cell variety are sometimes very difficult of diagnosis, sometimes resembling granulation tissue, and other tissues, and that the microscopist might have made a mistake.

Stated Meeting, February 1st, 1881.

Dr. James B. Hunter, *President, in the Chair.*

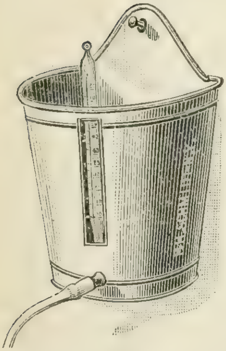
CAPITAL OPERATIONS DURING PREGNANCY.

The President mentioned the case of a woman who had compound fracture of the leg from a railroad accident three weeks before, at a time when she was six months pregnant. The leg was amputated and she made a good recovery without any tendency to miscarriage. Another woman, at about the seventh month of pregnancy, had a bad fracture of the leg from a street-car accident. The leg was amputated. In this case, also, there was not the slightest tendency to miscarriage. He would like an expression of opinion of those present of the liability to miscarriage, in advanced pregnancy, from severe accidents and capital operations. He believed there was less danger at the sixth or seventh month than two months earlier.

The first patient was a primipara thirty years of age; the second, a multipara, about forty years of age, and very stout.

Stated Meeting, February 15th, 1881.

James B. Hunter, *President, in the Chair.*



VAGINAL IRRIGATOR.

Dr. Mundé exhibited a vaginal irrigator with a modification that furnished the operator a means by which the temperature of the injection can be constantly ascertained and regulated. It consisted of a thermometer in the anterior wall of the irrigator.

SARCOMA OF THE OVARIES.

Dr. Garrigues, the Pathologist, presented a specimen which had been given him by Dr. Reynolds, who gave a brief outline of the clinical history as follows: A woman, quite well advanced in life, suffered from fecal impaction, which was relieved, but there remained in the middle part of the abdomen what seemed to be a filled bladder, but the catheter showed that it was not. A few days later, sudden abdominal pain and death within a few minutes. At autopsy, the abdominal cavity contained a large quantity of reddish fluid, and in the pelvis was found the mass presented. It consisted of very numerous cysts with walls so friable that they ruptured upon slight touch. The urinary bladder was normal. The uterus was entirely imbedded in the cystic mass,but was perfectly normal. The right Fallopian tube was normal. The left Fallopian tube was lost in the cystic mass. The cyst-walls were transparent. Microscopical examination showed that the growth was sarcomatous, and that the thin walls of the cysts were composed mainly of spindle-cells. No trace of the ovaries had been found, and the conclusion was that both of them had undergone cystic sarcomatous degeneration. It was not what is commonly described as cysto-sarcoma of the ovaries, or those tumors in which the largest part is solid, and with this there are cysts, but it was a mass of cysts with uncommonly thin walls.

PESSARY IMBEDDED IN THE VAGINA.

DR. F. P. FOSTER presented a pessary that he had removed from a vagina, in which it had been worn for two years. The instrument was of the variety made of watch-spring and covered with rubber. The patient was sixty-five years old. The pessary was introduced two years ago, on account of falling of the womb, and had never been removed. Latterly she had suffered with distress in that region and an offensive discharge, for the relief of which she consulted Dr. Foster, who found the instrument collapsed and imbedded in the vaginal wall.

EXTRAUTERINE PREGNANCY.

DR. FOSTER also presented a specimen sent to him by Dr. J. P. Hassler, of Cochampton, Pa. It was accompanied with the following history. Mrs. V., æt. 35, the mother of one child twelve years old, menstruated last on March 18th–23d, 1879. In the following June, she had an attack of what seemed to be uterine colic. The uterus was enlarged, a shred of membrane was found hanging from the os, and threatened abortion was diagnosticated. Anodynes were given and rest enjoined, and within a few days she was again in her ordinary health. On the 22d of June, she had a similar attack, but more severe than the first. On the 8th of July, she suffered from a recurrence of pain of the same character—something like intestinal colic. It continued for ten hours, then subsided under the influence of large doses of morphia, and the woman was again able to attend to her household duties. On December 18th, she supposed herself to be in labor, although she had no pains. She experienced all the general sensations which existed at her previous labor, and sent for Dr. Hassler, who was unable to find the os uteri. Dr. Greenlee, of Meadville, was subsequently called in consultation, and he also was unable to find the os. The patient's condition was not such as demanded immediate interference, and it was decided to await further developments. During the next few days, there was not much change in the patient's general condition. On December 21st, 1879, fetal movements ceased. On January 24th, 1880, a fetid vaginal discharge began. After a careful and prolonged examination the os was then found high up behind the symphysis pubis, and from it the dark offensive discharge came. It was found to be impossible, however, to change its position. The general health of the woman was good. The discharge continued for several days and then ceased. It recurred in February, again in March, and was offensive, but in April it was not offensive. The woman made an apparently complete recovery, and the abdominal enlargement gradually diminished. On December 13th, 1880, she was again taken sick, septicemic symptoms developed, and she died January 4th, 1881. At autopsy a well-developed male fetus was found within a suppurating sac that occupied the central part of the abdomen and nearly filled the pelvis. The uterus was small, but apparently healthy. The dead fetus was carried three hundred and eighty days. The specimen was referred to the pathologist.

FIBROMA OF THE BODY AND CARCINOMA OF THE CERVIX OF THE UTERUS.

Dr. C. S. Ward narrated a case which came under his observation at Dr. Thomas' College Clinic. A woman, æt. 43, came complaining of inability to control the discharge of her urine. She had an abdominal tumor. On examination it was found that she had a watery discharge from the vagina that had been mistaken for flow of urine, and above was a large cancerous cervix. In the abdominal cavity Dr. Ward was able to make out distinctly five fibromata, each about the size of his fist. One interesting feature of the case was the coincident occurrence of fibromata of the body with carcinoma of the cervix of the uterus.

Dr. Mundé remarked that it was not rare to find fibroma of the body and carcinoma of the cervix of the uterus. It is rare, however, to see the two diseases co-existing either in the body or the cervix.

Dr. Garrigues remarked that carcinoma and sarcoma may exist in the same tumor. Usually the carcinoma exists first, and when its development begins to go on rapidly, these parts become sarcomatous.

DR. LUSK'S CEPHALOTRIBE.

Dr. Mundé narrated a case as follows. He was called in consultation to see a woman who had been in labor seventy hours. Forceps had been applied several times, and four physicians were in attendance. He found a small woman, whose general condition was very good; the os was moderately dilated, she was in good spirits, and no anesthetic had been administered. The head was presenting, and it was rather soft. There was evidently antero-posterior narrowing of the pelvis. He perforated the head with Braun's trephine, destroyed the brain, and with considerable difficulty applied Lusk's cephalotribe, and extracted the child without doing any damage to the mother. The child was decidedly offensive. He washed the uterus out with carbolized ice-water, and the woman made an excellent recovery. The cephalotribe *did not slip*, but held so firmly as to enable him to make powerful traction. After delivery, Dr. Mundé examined and estimated that the antero-posterior diameter of the pelvis did not exceed three inches.

Dr. Hanks referred to two cases in which, after several attempts at effecting delivery with the forceps had failed, he delivered the woman easily with Lusk's cephalotribe and both mothers did well.

PREGNANCY WITH SUBMUCOUS FIBROIDS.

The President mentioned a case in which the attending physician thought he could feel three heads in the pelvis. Dr. Hunter detected only one head, delivered with forceps the child to which it belonged, and then recognized the presence of two very large submucous fibroids. The uterus contracted well, there was no hemorrhage, and the woman, a negress, recovered rapidly and completely.

SARCOMA OF THE VAGINA AND CERVIX—INSANITY.

Dr. G. T. Harrison narrated a case as follows. He was called to see a lady who was said to have some form of ulceration of the neck of the uterus, and he found what he supposed was cancer of the posterior portion of the fornix of the vagina and the cervix. He endeavored to remove the growth; and for that purpose used Simon's scoop, and the actual cautery. He applied a solution of bromine once afterwards. The patient did well. Previously she had had profuse hemorrhages, suffered from intense pain, and lost flesh and strength. After the operation she recovered sufficiently so as to be out of doors. Soon after that, she began to manifest mental disturbance, spectral illusions developed, and subsequently well-marked insanity, and she was taken to an asylum. On microscopical examination the growth removed was found to be a round-celled sarcoma. The question of metastasis of the disease to the brain arose in Dr. Harrison's mind as a possible cause of the patient's subsequent insanity.

Stated Meeting, March 1*st*, 1881.

DR. JAMES B. HUNTER, *President, in the Chair.*

DERMOID TUMOR OF THE OVARY.

DR. MATTHEW D. MANN presented a specimen with the following history. Last summer he was called by Dr. Booth, of Hartford, Ct., to see a colored woman, æt. 40, who, it was supposed, had an ovarian tumor. She had suffered from vomiting, pressure, pain in the back, etc., but on account of the warm weather and the surroundings of the patient, it was decided to postpone operative interference other than tapping to afford temporary relief. Accordingly, Dr. Mann tapped and drew off about one quart of fluid, and the patient was made quite comfortable. In October, she again began to suffer from pressure, produced by the tumor, and he determined to operate at once, which he did with the assistance of Dr. Mundé and several other physicians. The tumor was not large, but the abdominal walls were very tense. When the tumor was reached, he found no adhesions, and he then plunged in a trocar, but only a comparatively small quantity of fluid was evacuated. He then endeavored to remove the tumor, but when traction was made upon it he found that he was unable to do so, and, therefore, he enlarged the abdominal incision sufficiently to admit his hand, when it was found that the tumor had no pedicle, but was attached to the uterus, which was high up the base of the pelvis, and to the right side all the way up to the ilio-pectineal line. He introduced the trocar a second time and drew off what was apparently the contents of one or two cysts, then passed the trocar into other cysts, and finally succeeded in evacuating sufficient fluid to enable him to bring a part of the sac through the abdominal wound. He then made a long incision into the tumor, introduced his hand, and broke up the partition walls, removed large handfuls of cyst contents, which showed that the tumor belonged to the dermoid variety, and finally brought a considerable portion of the sac to the outside of the abdomen. But there was no pedicle, and he therefore made strong traction, separated the tissues as well as he could, made a kind of pedicle of the bottom of the sac, tied it *en masse*, and then removed the remaining portion of the tumor. He then passed a silk ligature through the middle of the stump and tied it firmly towards the uterus, and upon the other side he tied with the cobbler's stitch towards the middle of the stump, and left an opening in the walls of the sac, which he sewed on to the edges of the abdominal wound, and then inserted a drainage tube through the upper angle of the abdominal incision, and another also into the sac itself. Full antiseptic precautions were observed throughout the operation, which lasted nearly three hours, and the patient's condition remained good until towards its close, when it became necessary to give her hypodermic injections of brandy very freely. The wound was dressed with borated cotton wet in carbolized water, and the drainage tubes were plugged with borated cotton. A soft-rubber catheter was introduced and fastened in position with a strip of adhesive plaster attached to the thigh. Reaction set in, and on the morning following the operation the patient's general condition was good, both pulse and temperature being below 100. Her mental condition, however, was somewhat disturbed, and to quiet her singing and talking, a hypodermic injection of morphia was given. Vomiting followed soon afterward, but it was controlled by another hypodermic of morphia. It occurred again, however, and the fluid ejected had the appearance of that vomited in peritonitis. There was no elevation of temperature and her pulse was good. The hypodermics of morphia were continued, and the vomiting also continued, and finally the morphia was discontinued and the vomiting ceased within twelve hours. On the fourth day, the patient's temperature rose to 102° F., and fetid material was oozing from the lower angle of the wound, and upon opening the wound at that point a small quantity of fetid pus was evacuated, and the temperature quickly subsided. From that date the patient steadily improved, and went out of doors at the end of six weeks. She then had a slight chill and intense pain over the region of the liver, with slight elevation of temperature. The severity of the symptoms was relieved by the use of poultices, blisters, etc., but she gradually failed. Subsequently phlegmasia dolens developed in the left leg, and with slight fever, loss of appetite, and general emaciation, she died three months after the operation.

At autopsy the wound was found open so as to admit the little finger a short distance, and from that a fistula communicated with the abdominal cavity. On opening the abdominal cavity, he cut upon a mass of soft substance, looking somewhat like brain matter, about half the size of his fist, and apparently connected with the omentum; and the omentum, which had given no trouble during the operation, was covered with small nodules or cysts, which contained a dark grumous material having a somewhat fetid odor. The fistula led into a small sac attached close to the uterus. Under and behind the uterus was another large cyst, and it was apparently beneath the mesentery. The specimens had not been examined microscopically, but the gross appearance at the time of the autopsy was very much like that presented by malignant disease. The kidneys were of the large white variety, and the liver was covered with plastic exudation.

GLASS STEM-PESSARY.

DR. WM. M. CHAMBERLAIN exhibited a solid glass stem-pessary to be worn for the purpose of straightening the uterus. The only peculiarity which it had was that fully half an inch from the button upwards the stem was reduced in diameter, the object being to thus allow the os uteri to clasp it and hold the stem in position. It had been worn without inconvenience during menstruation.

THE PRESIDENT referred to a case in which a solid glass plug had so occluded the cervix that the menstrual flow could not take place. When he removed it a gush of blood followed, and he thought that a perforated plug would have obviated the difficulty.

OPERATION FOR LACERATED CERVIX—A FATAL CASE.

THE PRESIDENT narrated a case as follows. A patient, forty years of age, had had a bad laceration of the cervix for eight years. Some years ago the diagnosis of epithelioma had been made, and the condition of the cervix at the time of the operation was such as indicated the beginning of malignant disease. In accordance with advice given by Drs. Thomas and T. A. Emmet, Dr. Hunter performed the operation on the 16th of February, and, at the same time, curetted the mucous membrane of the body of the uterus. The patient came from under the influence of ether in intense pain, such as required hypodermics of morphia for its relief, and she was never free from pain afterwards. On the following day, there was distinct evidence of peritonitis, and she died of exhaustion on the tenth day. He thought that the peritonitis was due to rupture of some cyst into the peritoneal cavity, and not to the operation itself. Autopsy could not be obtained.

The President remarked that he had not seen peritonitis due to operation for laceration of the cervix, although he had seen it follow incision of the cervix. In the case just reported, the uterus was perfectly movable.

Dr. Mundé inquired whether the President had seen cellulitis following the operation.

The President replied that he had seen *three* cases, but in all there was a history of previous cellulitis.

Dr. Mundé referred to a case which illustrated great tolerance of manipulation of the cervix in a patient who had so-called chronic pelvic peritonitis. The uterus was fixed completely, there was a laceration of the cervix up to the vaginal insertion, and the vaginal vault was dense like a board. Under the use of the tincture of iodine, painted upon the vaginal vault, hot-water injections, etc., the patient improved greatly, but at the end of two months the tissues did not exhibit any signs of becoming softer, and he then began to gradually accustom the lips of the cervix to being approximated, by drawing them together with two tenacula at each visit, and finally he introduced two silver sutures, closed the cervix, and allowed the patient to go. She wore the sutures without inconvenience until her next visit to his office, when they were found loose, were removed, and two more were introduced further back. These kept the lips of the cervix together perfectly, and she went another week, when he performed the operation and applied eight sutures. On the fourth day she got out of bed contrary to directions, and on the following day came to his office, when she was directed to return to her bed. The stitches were removed on the ninth day and union was complete. On the tenth day she walked two miles, and not the slightest evidence of inflammatory action followed.

Dr. Mann referred to a case in which he performed the operation for an extensively lacerated cervix. There had been previously neither cellulitis nor peritonitis. The patient did well for several days, when she got out of bed and assisted in moving, and when Dr. Mann next saw her he found that the stitches had all torn out, and extreme cellulitis followed. She was transferred to Roosevelt Hospital, where, under the care of Dr. Watts, she made a very good recovery. The case illustrated the necessity of quiet after the operation.

The President thought it was a safe precaution to keep the patient in bed a week. He thought that dragging the uterus down was as likely to do harm as the operation itself.

Dr. Mundé referred to a case in which he operated, kept the patient in bed a week or more, and then found that union had not taken place. He then scraped the edges of the wound, introduced eight silver sutures, the patient went to her work, and on the tenth day found union was complete. There was no tension upon the flaps.

The President thought that the upright position did not have a tendency to separate the flaps. The chief danger from allowing the patient to get up was the intercurrence of cellulitis.

Dr. Mundé asked

WHAT HAVE BEEN THE RESULTS IN LABORS FOLLOWING OPERATION FOR LACERATED CERVIX?

The President thought that the cervix was no more liable to be lacerated in labors following the operation than it was originally.

He had seen three cases, Dr. Mundé had had two cases, Dr. Peaslee referred to one case, Dr. Watts had had one case, Dr. Mackenzie one case, and Dr. Mann two cases in which the operation had been performed and the patients had subsequently passed through labor without further laceration.

The President remarked that, so far as rupture of the perineum was concerned, it had not occurred in subsequent labors in the larger proportion of cases.

Dr. Mundé also asked

WHAT HAS BEEN THE RESULT OF THE OPERATION FOR LACERATED CERVIX, WITH REFERENCE TO MAKING THE OS TOO SMALL?

Dr. Ward had not seen sterility attributable to the operation.

Dr. Mann had seen one case in which the os admitted a probe, but not a sound.

The President had seen one case of pin-hole os as the result of the operation, but it was sufficiently large to allow menstrual fluid to escape.

Dr. Foster asked

WHAT DEGREE OF STENOSIS OF ANY PORTION OF THE UTERINE CANAL WILL CAUSE STERILITY?

He did not believe that any degree of stenosis short of occlusion would prevent conception.

The President thought that, with a minute os externum, the probabilities of sterility were increased.

Dr. Mundé remarked that spermatozoa doubtless could pass through an opening which permitted the escape of menstrual fluid.

Dr. Foster again asked, Are there any well-ascertained facts to show that narrowing of the cervical canal can produce sterility?

Dr. Mundé remarked that in many cases no cause for the sterility can be found except the existence of a long conical cervix, and in some of these cases pregnancy has followed cutting and dilating measures.

Dr. Foster remarked that such was not a convincing statement because many women went for years without bearing children, and finally became pregnant without any operative interference whatever.

Dr. Ward recalled two cases; one in which the woman, previously sterile for many years, became pregnant immediately after dilatation of the cervix with a sponge-tent; and in the other pregnancy followed quickly after an operation performed by the late Dr. James L. Brown.

Dr. Mann referred to two cases of sterility, one of thirteen years' standing, in which pregnancy immediately followed the introduction of a sound.

Dr. Chamberlain referred to a case of sterility of eleven years' standing, in which pregnancy followed the next menstruation after the introduction of a sound.

Dr. Mundé remarked that the occurrence of pregnancy after the introduction of a sound does not prove that the previous sterility was due to a narrowed cervical canal. It might be a case of simple relative stenosis, caused by slight anteflexion, or slight endotrachelitis, etc., and the temporary correction of the condition permitted pregnancy to occur. He thought that impregnation had more frequently followed dilatation than operative measures.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, June 2d, 1881.
Vice-President, Dr. Thomas M. Drysdale, *in the Chair.*

LAPAROTOMY FOR EXTRAUTERINE FETATION.

Dr. Wm. Goodell exhibited a fetus and related the following history of the mother.

A mulatto woman, forty-one years of age, had menstruated regularly for nine years, the interval since the birth of her last child, until three weeks before Christmas, when the menses ceased. The woman had no suspicion of pregnancy, but thought the cessation due to the menopause. She suffered from colicky pains, and was treated by a physician for intestinal cramps. In February a severe attack of colic was followed by partial collapse, and another doctor was called in; he found a belladonna plaster on the abdomen and had it removed. His diagnosis was pelvic abscess, and he recommended the patient to go into the University Hospital.

Dr. Goodell, upon examination, found the uterus fixed, Douglas's pouch hard and doughy, with all the other evidences of peri- and para-metritis. He could hear no murmur or fetal heart-sound in the abdominal tumor, but he fancied that he felt a slight movement. The diagnosis was obscure, but he leaned to the idea of extrauterine fetation. The sound could be introduced four inches into the uterine cavity. It passed up behind the pubes, thus excluding retroversion of a gravid uterus.

Toward the latter part of May the placental bruit and the fetal heart could be heard. The cervix was now dilated and the uterus brought down; a finger passed through the os could feel the fringed edge of a decidual membrane.

The abdomen was opened with antiseptic precautions, the sac was torn open with a uterine dilator, and the fetus was removed. It lived but a few minutes. The placenta was very large and was attached to the sac on the right side; it was not removed. The wound was closed, the fetal cord being brought out of the lower angle, and the whole covered with salicylated cotton. Three days afterwards the cord was desiccated, odorless, and free from discharge. No drainage tube was used, as the antiseptic precautions were trusted to prevent decomposition of the placenta. But the next day the pulse was frequent and the temperature high; septic peritonitis had set in, and finally resulted in death. An autopsy showed the placenta to have degenerated into a grumous mass, and there were numerous pyemic abscesses in the liver.

The errors in diagnosis, made in this case by the physicians, were excusable, as it was quite obscure, there having been no signs of pregnancy observed, and no expulsion of a decidual cast from the uterus had occurred.

The diagnostic signs usually observed consist of:

1st. Signs of pregnancy.

2d. Colicky pains or cramps otherwise unaccountable.

3d. Irregular menstrual discharge with the appearance of a decidual cast.

4th. Ease of hearing the fetal heart-sounds and feeling the fetal members when there is not too much adipose tissue in the maternal abdominal walls.

Dr. A. H. Smith, in response to a call by the Chairman, remarked that the complete disappearance of the menses in this case was exceptional. The irregular menstrual discharge, during pregnancy, is one of the usual diagnostic points in extrauterine fetation. If the fundus of the uterus is found above or behind the pubes, a retroversion of the gravid uterus is excluded from consideration.

Dr. Chas. H. Thomas.—Four cases of extrauterine fetation had come under his observation in one year. In one, which had entered the Pennsylvania Hospital for gangrene of the left leg, and which resulted in death, the pregnancy was not suspected until an autopsy was made to discover the cause of the obstruction to the circulation, when a fetus of two months was found in the abdominal cavity. The placenta being implanted directly over the left iliac artery, caused the formation of a clot, partially organized, in that vessel. In this case there had been no abdominal pain to attract attention, and no disturbance of the menstrual function.

OVARIOTOMY.

Dr. Goodell related the following history: A woman had menstruated regularly every month, but her abdomen was very much enlarged. This enlargement had been pronounced by a physician to be pregnancy. Dr. Goodell felt suspicious of a design to make him the innocent agent of causing an abortion, but after making her come to him while she was menstruating and after several examinations, he cautiously introduced the sound and decided that it was an ovarian cyst.

He had removed the tumor that afternoon, June 2d. It had proved to be an olygo-cyst of the left ovary. The right ovary was enlarged and was also removed. Both ovaries were exhibited to the members.

Dr. Goodell then exhibited a large, solid ovarian tumor, which he had also removed that afternoon. The patient had been sent to him by Dr. Hayes, of Bellefonte, who had tapped her three times since last December, when the tumor was first discovered. The diagnosis was obscure until he (Dr. G.) had made an exploratory incision. The adhesions were parietal, omental, and intestinal. The incision had to be enlarged to remove the tumor, which was too solid to admit of any reduction in its size. When cut open, the contents were found to be partially broken down. A cyst at one end contained about a quart of fluid. This was probably the one which Dr. Hayes had tapped. It had formed muscular bands of adhesions to the omentum and abdominal parietes. These had caused a great deal of colicky pain while the case was under observation. Dr. Goodell strongly suspected malignancy in this case.

In another case of ovariotomy, in which he had no suspicion of malignancy even at the time of operation, the patient recovered. But several weeks later the stump degenerated into a malignant growth, and death soon followed from a pleuritic effusion, the result of extension of the disease throughout the abdomen and thorax.

On motion of Dr. A. H. Smith, the specimen was referred to the Committee on Morbid Growths, consisting of Drs. Tyson and Beates.

Dr. W. S. Stewart asked if the ovarian cell had been sought for in the case of suspected malignancy.

Dr. Goodell had not had time to tap or look for it, but its absence would not have prevented the operation.

INTRAUTERINE AMPUTATION (?).

Dr. E. E. Montgomery exhibited a malformed fetus. Menstruation in the mother had ceased in the early part of last November. The movements of the fetus, after being very tumultuous for some time, ceased entirely about the first of May. Delivery was spontaneous four weeks later. The thumb and little finger only remained on one hand, and the other arm ended abruptly at the wrist. The cord was twisted to a very small diameter near the abdomen. There was no known cause for the accident.

Dr. W. S. Stewart remarked that the cause of such an accident would be very interesting if it could be ascertained. Dr. Taylor had written recently a very interesting paper about the effect of maternal impressions upon the fetus. A woman who was pregnant saw at breakfast every Sunday a friend of her husband. He had lost a hand from accident, and the child when born was similarly deformed.

Stated Meeting, July 7th, 1881.

President, **Dr. E. L. Duer,** *in the Chair.*

Dr. Thos. M. Drysdale presented

TWO OVARIAN TUMORS SUCCESSFULLY REMOVED FROM PATIENTS WHO HAD PREVIOUSLY UNDERGONE OVARIOTOMY.

Cases in which ovariotomy has been performed twice successfully, in the same patient, are exceedingly rare, and, for this reason, I have thought these specimens of sufficient interest to present to you this evening.

The first tumor which I show you was removed from Mrs. R. H., aged 39 years, whom I saw at the request of Dr. J. C. Gilbert, of Chestnut Hill, January 14th, 1881. She informed me that the late Dr. Washington L. Atlee had removed a tumor of the left ovary from her, September 11th, 1872, and, on referring to his case-books, her statement was found to be correct. Although her health was greatly broken at that time, and the operation a severe one, she recovered rapidly, and had good health until about eighteen months ago. She was then seized with severe pain and great enlargement in the region of the liver. The swelling was hard and dull on percussion. Her general health suffered, and she missed her menses, which did not return for five weeks after she recovered, a period of several months. The enlargement gradually disappeared, and her health improved.

Since the removal of the first tumor she had borne two children, one six and the last three years old.

Last September, after some unusual exertion, she was attacked with severe pain and soreness, on pressure, in the right iliac region, accompanied with swelling of the whole abdomen. The swelling subsided slowly, but she was confined to her room for six weeks.

Previous to this attack her menstruation, with the exception just stated, had been regular; but she now became unwell every two weeks, with a dark, scanty discharge. Her general health suffered, and she emaciated rapidly.

The abdomen had increased in size slowly until recently, when the growth had become more rapid. I found the abdomen greatly enlarged, more particularly at its lower part, where it hung down on the thighs. The girth at the umbilicus was thirty-five inches, and from sternum to pubis measured fifteen inches. On percussion, the abdomen was dull everywhere, except over the left hypochondriac region. The right flank was dull, the left resonant. Fluctuation was distinct over the left side of the tumor, but the right side did not fluctuate.

The uterus was pushed forward to the pubis and to the right of the median line by the tumor, which filled the back of the pelvis. The pelvic portion felt solid, but not so hard as a uterine fibroid. The sound entered the uterus three and one-half inches. Its point could be felt above, and two inches to the right of the pubis. The sound, when *in situ*, did not follow the motions given the tumor.

As there was some doubt as to the connection of the enlargement formerly existing in the region of the liver with the present tumor, I used the aspirator, and emptied a large cyst; but the greater bulk of the tumor, which was multilocular, remained and filled the lower part of the abdomen. The fluid was thick, of a dark-green color, and contained the ovarian cell.

My diagnosis was multilocular ovarian tumor of the right side, with extensive adhesions.

I operated at the patient's residence, at Mount Pleasant, on the Germantown railroad, February 1st, 1881. Dr. Gilbert gave ether, and I was assisted by Drs. W. S. Stewart, I. R. Shellenberger, and my son. Drs. Robert Bolling, Geo. H. Burgin, and Frank W. Thomas were present. The operation was commenced under the carbolized spray, the patient's pulse being then 120.

An incision, three inches in length, between the umbilicus and pubis, through a very thin abdominal wall, exposed the tumor. It had a very vascular peritoneal covering, and was attached firmly to the anterior abdominal parietes. After separating some of the adhesions, a trocar was used, and a large quantity of thick, glairy fluid removed. This diminished the tumor comparatively little, for a large multilocular mass was left, which adhered to the intestines behind it. After detaching these and the extensive omental adhesions, the upper part of the tumor was drawn through the wound, which was then enlarged upwards to five inches in length. The pelvic portion of the tumor remained firmly adherent to the neighboring parts, from which it was detached with considerable difficulty. The pedicle was long and vascular, and was secured by an Atlee's clamp. The abdominal wall where the tumor had been attached, and the torn visceral adhesions were very vascular and bled freely. The bleeding points were ligated with fine silk, the ends of which were cut short. Several omental vessels and two in the abdominal incision required ligating.

The pelvis and abdominal cavity were carefully cleansed, and a linen tent, reaching from the bottom of Douglas's sac to the outside of the wound, left in.

The wound was closed with five silver-wire sutures, and dressed with carbolized cotton, gauze, and rubber cloth, and the whole secured by a flannel roller.

The patient made an uninterrupted and excellent recovery, and is now in good health.

The other ovarian tumor was removed from Mrs. I. B., aged 65 years, a small, pale, thin lady, of New York City. During her visit, in May, 1879, she informed me that she had had a tumor of the right ovary removed, December, 1863, sixteen years before, by the late Dr. W. L. Atlee. On referring to her case, in his notes, I found it stated in the history which she then gave, that the tumor commenced in the *left* iliac region. When Dr. Atlee removed it, it was found to be a tumor of the *right* ovary, weighing fifteen pounds, and had a very vascular pedicle, which was secured by a clamp. She recovered rapidly and became healthy, and remained so until two years before her visit to me. She stated that she had menstruated regularly until 1876, when the flow left her suddenly and without trouble.

In 1877 she noticed a small lump in the left side, deep in, just over the groin. The lump was solid, not easily moved, and sore when touched. There was also a feeling of soreness along the cicatrix of the old wound. An eminent New York surgeon had examined her, and diagnosed a fibrous tumor lying back of the womb; he at the same time advised an immediate operation.

I found the abdomen filled with a tumor which was elastic and smooth-walled on the left side, while on the right it was hard and nodulated. Its lower portion was very painful when pressed upon. The tumor was movable, to a limited extent, upwards, downwards, and laterally. It was dull on percussion, and no fluctuation could be discovered. Her girth at the umbilicus was thirty-six inches. From ensiform cartilage to pubis measured thirteen inches.

The uterus was pressed closely against the pubic bone in front. The os was high, the cervix short and swollen, and the posterior uterine lip seemed to be continuous with the tumor. The sound entered, with great difficulty, to a depth of three and one-half inches, and could only be inserted by pressing the handle well back against the perineum. Its point could be felt just over the centre of the left groin. When the sound was in the uterus and the tumor moved, the sound followed the motion of the tumor. The tumor dipped into the pelvis, but did not fill it.

My diagnosis was that it was either a fibro-cystic tumor of the uterus or an ovarian tumor, to be decided by time or an operation.

In May, 1880, the tumor commenced to grow rapidly, and when examined, was found to have become cystic and its uterine relation changed. The right side of the abdomen was filled with a large cyst, while the left side of the tumor remained hard and firm. It was producing so much distress from distention that I removed several pints of a dark-green fluid with the aspirator. In the fluid I discovered the ovarian cell. A multilocular ovarian tumor was then diagnosticated.

In April, 1881, her girth at the umbilicus had increased to forty and a half inches. The aspirator was again used, and eighteen pints of an olive-green fluid, rich in cholesterin, removed. After emptying the cyst, a large, hard mass filled the left side, and could be felt deep in, projecting across the abdomen.

She came to this city, and I removed the tumor, May 23d, assisted by Drs. D. Burpee, W. S. Stewart, W. P. Buck, and my son, and in the presence of Drs. W. B. Atkinson, G. B. Dunmire, L. D. Harlow, and W. F. Patterson. I made an incision of five inches, carrying it directly through the old cicatrix down to the tumor. A large cyst which presented was tapped, and the tumor carefully examined. It was adherent to the front and sides of the abdominal walls, from which it was detached with the fingers. In doing this another cyst was found, occupying the left hypochondriac region, pushing upwards the stomach and spleen. This was also tapped, and an attempt made to draw the tumor through the wound, but it was found to be impossible, owing to the large multilocular mass which filled the left side, and extended across to the right iliac region, besides filling the pelvis and the surrounding parts.

The incision was enlarged five inches above the umbilicus, making a wound fully ten inches in length. Some omental and visceral adhesions were detached, and the tumor lifted out of the abdomen. It was found to be the *left* ovary and had a large, extremely vascular pedicle, which was secured by an Atlee's clamp and the tumor detached with the knife.

All bleeding vessels were secured by torsion, so that not a single ligature was used. The abdominal and pelvic cavities were carefully cleansed until all bleeding ceased. The wound was then closed with seven silver sutures and a steel pin, which was to secure the perfect adaptation of the wound in the abdominal wall to the pedicle. The usual antiseptic dressings were used, and, in fact, every antiseptic precaution observed.

The only unpleasant symptom in her case occurred about five hours after the operation. She had been complaining of pain in the lower part of the abdomen and down the left leg, which gradually increased, in spite of a full opiate, until it became almost unbearable. Thinking it might arise from the distention of the bladder raising the uterus, which was now firmly secured to the abdominal wall by the old adhesion on one side, and the pedicle of the last tumor on the other, I used the catheter and drew off nine fluid ounces of urine, which gave her immediate relief. From this time she recovered rapidly, nor did her pulse exceed 100 nor her temperature 99½ degrees.

On June 3d she walked from her bed to the window and left this city, June 13th, for New York. I have heard from her within a week and she is gaining flesh and has a vigorous appetite.

Dr. B. F. Baer, in answer to a call from the President, remarked that he had never seen a case of secondary ovariotomy, but that in many of the cases of ovariotomy which he had seen in Dr. Goodell's practice the remaining ovary was found to be undergoing cystic degeneration to a greater or less degree, and he believed that a careful examination of the remaining ovary should always be made, and, if found to be diseased, it should be removed, thereby preventing the necessity for a secondary operation. He inquired whether such a condition might not have existed even in these cases.

Dr. Drysdale in reply called attention to the length of time that had elapsed after the first operations, nine and sixteen years respectively, that would seem to exclude such an idea.

There was no abdominal sulcus resulting from old adhesions. There was no recognized reason for the original tumor in the second case having been first noticed in the left iliac fossa when it originated in the right ovary. He could only suggest twisting of the tumor made possible by its long pedicle.

Dr. G. Wilds Linn inquired if it was customary now to remove both ovaries. He had been present at an ovariotomy in which the operator removed from a young woman both ovaries, although one appeared to be perfectly healthy.

Dr. Baer could answer for Dr. Goodell that he did not remove the second ovary if it appeared to be healthy.

Dr. Drysdale would consider such a thing unjustifiable. One of the patients, whose history he had read this evening, had had two children between the two operations. The history of second ovariotomies is rather sparse. Dr. Spencer Wells has reported five cases with three deaths. Dr. Atlee operated in four cases with better results. Dr. Drysdale had had applications for four secondary operation in eight months.

Dr. R. P. Harris read a paper having the following title:

DOES THE REMOVAL OF A FETUS BY ABDOMINAL SECTION AFTER A RUPTURE OF THE UTERUS CONSTITUTE A CESAREAN OPERATION? AND IS IT PROPER TO CLASSIFY THIS FORM OF DELIVERY WITH GASTRO-HYSTEROTOMY, WHICH HAS A DIFFERENT DEGREE OF FATALITY BOTH AS REGARDS THE MOTHER AND CHILD?[1]

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Wednesday, June 1st, 1881.

Dr. Matthews Duncan, *President, in the Chair.*

Dr. Godson presented a cast of the child's head, showing a depression after delivery by forceps, which he had shown at a previous meeting of the Society.

SPECIMENS OF CANCER OF THE BODY OF THE UTERUS.

Dr. Galabin showed microscopic sections from two cases, illustrating the histology of cancer of the internal surface of the body of the uterus. They showed a transition from cylinder epithelioma to carcinoma. The tissue was removed by curette. In the first case, in which the uterus was movable, and but slightly enlarged, there was proliferation of glands with upgrowth of processes from their walls filling up the lumen. In the second

[1] See Original Communications.

case, in which the uterus was fixed and nodular, there was, in addition, infection of the stroma with epithelial masses. He had found cancer of the body of the uterus relatively not uncommon in virgins, but had hardly ever met with the ordinary cancer of the cervix where there was proof of virginity.

DR. WILTSHIRE related a case in which, after thorough removal of the malignant growth and the use of perchloride of iron, the patient, a lady sixty years of age, lived three years, all but one month. When cancer of the body of the uterus was diagnosed, removal was desirable where practicable.

DR. CLEVELAND hoped that the time would come when such an exact diagnosis of the disease in its early stage might be established as to warrant recourse to more radical measures than had been carried out by Dr. Wiltshire, namely, the entire removal of the uterus.

DR. HEYWOOD SMITH added his testimony to Dr. Galabin's as to the relative frequency of cancer of the body of uterus in virgins, and cited a case of a lady aged fifty. He considered that, when such cases could be diagnosed early enough, the uterus should be removed, leaving the cervix as a stump.

MR. DORAN urged the importance of the fact mentioned by Dr. Galabin, that cancer of the cervix was almost peculiar to impregnated women, since it was among such that the numerous forms of erosion were so frequently found. The cure of such a form of erosion as preceded cancer might absolutely avert malignant disease.

THE PRESIDENT considered that total extirpation of the uterus was at present too dangerous an operation. He had known a case of cancer of the cervix in a virgin.

DR. WILTSHIRE showed the uterus, fetus, and placenta from a case of utero-vaginal rupture. The placenta, which was previa, was found in the vagina, and the head, which was low down, was delivered by the obstetric house surgeon. The patient rapidly sank. The uterus was large and thick, containing many small fibroids.

CYST OF GREAT OMENTUM.

Mr. Alban Doran showed for DR. BANTOCK a large thick-walled, single cyst of the great omentum, removed by operation. The symptoms had resembled those of ovarian cyst. Once the cyst had ruptured and filled again, and several times it had been tapped. At the operation there was great difficulty in separating the cyst from its connections. A fold of mesentery separated the cyst from the pelvic organs, which were absolutely normal. The patient was doing well four days after operation.

DR. GODSON showed "Marshall's patent sectional feeding bottle" which had a movable front, enabling the fingers to be introduced to clean the interior.

A CASE OF PLACENTA PREVIA COMPLICATED BY A LARGE MYOMA.

By Dr. Hickinbotham.—The patient was a delicate primipara, of small stature, at full term. She had previously aborted. She had been in labor six hours and had lost much blood. The os was dilatable, large enough to admit two fingers. The placenta presented completely; no edge could be felt, and through its centre, which seemed to be the inner part, a rounded mass was felt, and supposed to be the fetal head. The author decided to break through the centre of the placenta with the view of turning. Having torn through it, he discovered that the round mass was a large tumor, upon which the placenta was attached. The delivery of the placenta was therefore completed, after which the hemorrhage greatly abated, version was performed, the aftercoming head perforated, and extraction effected with the aid of the crotchet. A terrible attack of septicemia followed, and for a fortnight I almost despaired of the patient's life. The tumor sloughed, and became protruded through the os. On the tenth day a softened and fetid portion was extracted, and the remainder painted with pure carbolic acid. In three months the uterus was freely movable and its cavity of normal length, but the patient had not again menstruated after eleven months. If the placenta had not been previa, the author would have preferred Cesarean section.

Dr. Barnes said that no general rule could be laid down for labor complicated by fibroid tumors. Sometimes necrosis occurred when the tumor did not obstruct delivery, and the cases might do well. Sometimes the tumor might be pushed out of the way, and delivery effected by craniotomy or turning, or enucleation might be available. In extreme cases Cesarean section might be necessary, and in such cases it should be considered whether Porro's method of removing uterus and ovaries would not be best.

Dr. Hickinbotham said that the size and wide base of the tumor precluded enucleation. He did not agree with Dr. Barnes as to the advisability of removing the uterus, considering that the results of the operation had been very unsatisfactory, but he thought it would be sufficient to remove the ovaries and Fallopian tubes in performing Cesarean section.

A CASE OF MYXODEMA.

By Dr. Mansell-Moullin.—The patient was æt. 38, mother of four children. At the commencement of her last pregnancy, she has been troubled with swelling about the eyes which continued for a month or two. Shortly after delivery the swelling about the eyes reappeared, and from this period she dated her present symptoms, which were those characteristic of myxodema, as recently described, the urine being free from albumen.

Dr. Gervis had had three cases of myxodema referred to him to examine the pelvic organs, but found nothing abnormal. Two had passed the climacteric, but one had not.

Dr. Wiltshire suggested that the patient should be shown. The affection was, he believed, degenerative, and often occurred about the approach of the climacteric.

The President had two examples of the disease now under his care, one was a married lady under forty, who had borne children, but came to him on account of amenorrhea. In the other patient, aged forty, the periods were regular and copious, but the disease was described as beginning with exophthalmos and amenorrhea for a year.

NOTE ON THE SO-CALLED LITHOPEDION,

being a supplement to the author's paper on so-called "Missed Labor," by Dr. Barnes.—The author had examined the specimen in the Hunterian Museum from Dr. Cheston's historical case, undoubtedly one of extrauterine fetation, and it had been minutely examined by Mr. Doran. The abdominal viscera and thoracic organs were quite soft, but impregnated with lime-salts. The skin and subcutaneous tissue of the front of the thorax and abdomen were thick and infiltrated with lime-salts, so as to feel gritty and friable, the same structures in the posterior part of the body were very thin and converted into calcareous plates. Another specimen in the Hunterian Museum, without a history, but apparently a fetus of not more than seven months' development, had also been examined by Mr. Doran. It showed a more advanced calcification of the shrunken soft parts. The surface was brittle and not remarkably hard. The lungs were powdery and effervesced with hydrochloric acid. In a specimen in St. Thomas's Museum, the cyst-wall was calcified, and there were calcareous plates in the skin. The viscera and muscles were soft.

The President said that the paper impressed him with the necessity for greater care than he and other authors had used in applying the word lithopedion. The observations confirmed the remarks which he made on the reading of Dr. Barnes' paper, that there was never a stone-child really, but only petrifaction of the membranes and adjacent fetal parts.

Wednesday, July 6th, 1881.

Dr. Matthews Duncan, *President, in the Chair.*

Dr. Fancourt Barnes showed an instrument designed by Dr. C. Duncan, of Rome, to measure the amount of flexion existing in anteflexion or retroflexion of the uterus.

Dr. Pope showed an anencephalous fetus. It was the first of twins, and an arm and funis presented.

Dr. Godson showed for Dr. Crank two specimens. 1. A malformed heart with transposition of great vessels. 2. Cystic degeneration of umbilical cord, which measured five inches in its greatest circumference.

Dr. Godson showed also for Mr. W. A. Thomson a pocket case of instruments in the form of a cigar case, made by Messrs. Arnold.

REPORT ON SPECIMEN SHOWN BY DR. CLEVELAND AT MAY MEETING.

By Drs. Galabin, I. Williams, and Cleveland.—The fleshy substance had a central canal and a smooth orifice like the uterus, and was two and a half inches long. The whole of its structure was that of uterine decidua. The committee considered that it was the entire decidua from the unimpregnated side of a double uterus, and thought it most probable that the body only was double, the cervix single.

Dr. Carter asked whether there had been an opportunity of verifying the condition of the uterus.

Dr. Galabin understood that Dr. Cleveland hoped to do so at a future time.

NON-ENCAPSULED FIBROIDS RESEMBLING RETAINED PLACENTA.

By Dr. James Braithwaite.—Two cases were related. In the first, unexpected hemorrhage occurred ten days after delivery, and a ragged mass was felt within the uterus which at first seemed to resemble placenta, but was tough in its deeper parts, and an integral part of the uterine wall. A great part was detached from the uterine wall, and removed in portions by scissors. Dr. Galabin reported on the growth that it showed no evidence of cancer, but was highly nucleated, and contained large muscular fibres, resembling the tissue sometimes seen in soft rapidly growing fibroids. The patient did well. In the second case, four days after an abortion at three months, hemorrhage occurred, and a ragged mass was felt within the uterus. The os was dilated with tents, and the growth removed by seizing a portion at a time and crushing it with strong forceps. On microscopic examination it was found to consist of very loose fibroid tissue.

Dr. Edis had met with a similar case in which, after a miscarriage at the fourth month, a mass, at first suspected to be placenta, turned out to be a submucous fibroid, encapsuled in the tissue of the uterus.

Dr. Herman mentioned a case which had been under his care, at the London Hospital, in which there was a large abdominal tumor, shown by autopsy to be malignant. The uterine cavity was dilated and contained a growth of loose, stringy texture. The patient at first thought herself pregnant, and a medical man, who was sent for, took the case for one of placenta previa.

DR. ROPER mentioned the case of a patient aged twenty-eight, married six years, who believed herself pregnant for the first time. The history was like that of pregnancy, but flooding came on at the seventh month. The case was supposed to be one of placenta previa, and Dr. Roper was summoned in the middle of the night. The os uteri admitted two fingers, and a mass like placenta could be felt. There was a loud bruit in each iliac region. Labor did not come on. Many months later the patient died rather suddenly from septicemia, and at the autopsy the case was found to be one of medullary cancer, which seemed to have commenced outside the uterus.

DR. FANCOURT BARNES had distinctly heard the sound called placental souffle in Dr. Roper's case. He should like to hear some explanation of these sounds.

DR. HEYWOOD SMITH did not consider that the intrauterine growths described quite answered to the ordinary characteristics of fibroids, especially as regards the irregularity of surface and tendency to break down. In Dr. Galabin's report, he thought that they approximated rather to a malignant character.

DR. GALABIN thought that there was nothing actually malignant in the specimen he examined for Dr. Braithwaite. He thought that the growth might possibly recur, because the tissue was so highly nucleated. It contained also large thin-walled vascular spaces.

A CASE OF PREGNANCY COMPLICATED BY CANCER OF THE CERVIX UTERI, FOLLOWED BY PYEMIA ASSOCIATED WITH SYMPTOMS SIMULATING DIPHTHERIA.

By DR. GALABIN.—The author saw the patient, aged thirty-four, the mother of five children, in consultation with Dr. R. A. Wallace. She was then nearly six months pregnant, and the whole circuit of the os was involved in firm cancerous growth. There was a laceration, however, on the left side, apparently antecedent to the cancer, which seemed to reach the outer limit of the growth. The author was at first inclined to recommend Cesarean section at the seventh month, but the patient refused her consent to this. Eventually, she came into Guy's Hospital for the induction of labor. Dr. Braxton Hicks examined her, and advised the trial of Barnes' bags to dilate the cervix. These were employed after labor had been started, at six and a half months pregnancy, by means of an elastic bougie. Dilatation of the os was effected up to a little more than two inches laterally, but the os remained of a horse-shoe shape. The hand could not be introduced for version. Perforation and cephalotripsy were performed, but the flattened head did not readily enter the cervix. It was extracted, however, by gradually stretching it out by means of Barnes' craniotomy forceps. The operation occupied altogether less than an hour. For some days after delivery, pulse and temperature were extremely variable, ranging from a normal pulse up to a somewhat high level. On the fifth day, the throat became inflamed, and on the tenth an adherent membrane was seen upon the pharynx, while, at the same time, some albumen appeared in the urine. Dr. F. Taylor saw the patient, and diagnosed the condition as being almost certainly diphtheria. She died on the eighteenth day. At the autopsy pus was found in the veins, near the cervix, and pyemic abscesses in the lungs. The membrane on the pharynx contained a mycelium fungus, and Dr. Goodhart, who made the examination, considered it to be merely a thrush. The author was rather inclined to consider that it was of a pseudo-diphtheritic character, secondary to the pyemia and analogous to the membrane seen upon the pharynx in some epidemics of virulent puerperal septicemia. Microscopic sections were shown of the membrane in situ, of the growth in the cervix, and of the kidneys, which showed some tubal nephritis, but no granular degeneration.

Dr. Herman expressed the opinion that the therapeutic means in these cases which offered the greatest hope of benefit to the mother were, first, the induction of abortion at the earliest possible period, and second, the removal of as much of the diseased tissue as could safely be cut or burnt away.

Dr. Roper said that when such a case came under notice only at the seventh or eighth month of pregnancy, the only alternative was between delivery per vias naturales after induction of labor, and Cesarean section. But in the early months he believed that the production of abortion was the proper treatment.

Dr. Godson mentioned a case which occured at the City of London Lying-in Hospital, during a severe endemic of puerperal fever, in which the symptoms were almost identical with those of Dr. Galabin's patient. She was almost the only woman who recovered, which tended strongly to prove that the disease was septic, and not the thrush of a moribund woman, spoken of by Dr. Goodhart.

Dr. Edis thought the question very important whether the whole circuit of the cervix was involved in cancer. In a case in which about two-thirds of the cervix was involved, he had delivered a living child by forceps, but the mother ultimately died from pyemia. If the whole circumference were involved in a patient at full term, he thought Cesarean section the best treatment.

Dr. Galabin said that his case was one in which he should have considered the induction of abortion indicated, if he had seen the patient at an earlier stage. He should feel some hesitation in making extensive incisions through a cancerous cervix, for fear both of hemorrhage and septic absorption afterwards. The actual operation had proved easier than he expected, although followed by a fatal result.

DISSECTION OF A MALFORMED CHILD.

By Mr. Lenton Heath.—The child lived to the end of the sixth week, dying then from hydrocephalus. The frontal bones showed cranio-tabes. The forearms on both sides were absent, the appearances presented by the stumps being very similar to those cases described as being due to intrauterine amputation; but dissection proved that this had not occurred, but that there was an abnormal development of the lower end of both humeri. The acetabula were absent, and the lower limbs also much deformed.

Dr. Roper considered intrauterine amputation to be an exceedingly rare phenomenon, most of such alleged cases being the result of arrest of development and not of amputation.

Mr. Powdrell mentioned the case of a female child having a similar deformity, which he had delivered at full term. Development had ceased at the lower end of the right humerus, but on the left hand were two thumbs. He hoped to show the child at a future meeting.

Dr. Herman asked whether, in Mr. Heath's case, the condition of the hip-joints resembled that which occasioned the so-called congenital dislocation of the hip.

INTERNATIONAL MEDICAL CONGRESS.

OBSTETRIC SECTION.

Dr. McClintock, *President*.

ABSTRACT PREPARED BY

FANCOURT BARNES, M.D.,

London.

The section was opened by the President who delivered an introductory address on the recent progress in obstetric medicine.

Prof. Tarnier (Paris) then presented his forceps and made remarks on the

IMPROVEMENTS IN THE CONSTRUCTION AND APPLICATION OF THE FORCEPS.

"Two reasons have led Dr. Tarnier to give up the perineal curve of the forceps.

(*a*) In direct applications, the forceps with the ordinary curve are easier to apply than the forceps with the perineal curve.

(*b*) In oblique applications, the convexity which results from the perineal curve comes into contact with one of the ischio-pubic rami, and causes a deviation of the handle of the instrument, whose action then becomes defective.

With forceps having the ordinary curve, when we wish to impress upon the fetal head a movement of rotation around the imaginary axis of the pelvic cavity, the handles of the instrument must describe externally an arc of a circle."[1]

PROF. I. LAZAREWITCH (Kharkoff, Russia) followed with a paper

ON THE CURVES OF MIDWIFERY FORCEPS.

"In the midwifery forceps there are three curves: the cranial, pelvic, and perineal.

The cranial curve is indispensable—without it, it is impossible to grasp and extract the head.

Only by the action of this curve the ends of the blades, pressing on the head from above (*vis a tergo*), causes it to move through the generative canal.

The parts of the blades applied to the side of the head, by holding it between them, direct its movement.

The greater the dimensions of the head, the greater is the divergence of the extremities of the blades, and the less is the pressure on the head from above. In my new forceps the lock renders divergence of the blades possible, while their parallelism is maintained.

In the action of the forceps on the head, besides the *expulsive* power, there is a *compressive* lateral power. This is exerted by the walls of the generative canal, and, as an additional force, by the action of the hand of the operator. This latter, being injurious, may be entirely avoided by corresponding manipulation and by mechanism of the forceps.

The pelvic curve of the blades of the forceps does not answer to the mechanical conditions for the favorable action of this instrument. It increases the opposing force and may give rise to injuries of the soft generative parts. The slighter the pelvic curves of the blades, the less is the injury. Forceps without any pelvic curve whatever answer best the mechanical requirements.

The perineal curve exists in very few forceps, because the perineum by its elasticity may be dilated to the os coccyx without injury.

The traction of the forceps should be directed by the muscular sensation of the hands, and by no special mechanism.

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[1] The abstracts of papers inclosed in quotation marks were furnished by the authors themselves.

The principal and indispensable conditions for good midwifery forceps may and should be explained.

The above positions may be demonstrated with the help of my new parallel forceps without the pelvic curve."

Dr. Fordyce Barker (New York) opened the discussion by stating that he had exhibited Tarnier's forceps, soon after its being made known to the medical profession, at the New York Academy of Medicine, and had demonstrated its use upon the mannikin. The opinions he then expressed were published in the American Journal of Obstetrics. This forceps was the first successful result in an attempt, in which many have failed, to assist nature by traction with an instrument with safety to the soft parts, in the direction of the axis of the superior strait.

In this respect all competent authorities who have studied the subject will admit that it is the most important modification of the forceps which has been made within the last quarter of a century.

By its use the head could be brought down from above the superior strait without injury to the soft parts, when this could not be effected by any other instrument hitherto suggested.

It is this feature which constitutes the great and original merit of the Tarnier forceps. As regards its principle it seemed to him perfect. Its danger was the risk of cutting the soft parts in the lower strait. He therefore recommends that when the head reaches the lower strait, the Tarnier's forceps should be taken off and delivery completed by an ordinary one. He then showed Dr. Lusk's modification of Tarnier's forceps, which he presented to Dr. Tarnier on Dr. Lusk's behalf.

Prof. A. R. Simpson (Edinburgh) ranged himself on the side of those who thought a pelvic curve essential in the construction of the forceps, and since Prof. Tarnier had shown how traction could be made in the true axis, he had come to believe the days of the short forceps to be numbered. He accepted the four principles laid down by Prof. Tarnier. In regard to Prof. Lazarewitch's plea for a straight forceps, he must insist on the necessity of a pelvic curve to seize the head at the brim. Men accustomed to the use of a particular instrument might cling to its use, but the coming generation would certainly resort to the more scientific instrument. The more he used the axis-traction forceps, the more he saw the value of the guidance afforded by the unimpeded movements of the application-handles. Prof. Lazarewitch had said that the practitioner must be guided by his muscular sense, but this was uncertain. The muscular sense was obscured by the efforts made in compressing the blades on the head. In Tarnier's forceps less muscular action was required, as all the effort was made in the way of simple traction. Prof. Simpson concluded by showing his forceps, which was a lighter modification of Tarnier's. It was Sir James Simpson's forceps with Tarnier's traction rods added.

Dr. Budin (Paris), being a pupil of Prof. Tarnier, had often used the forceps and had taught other physicians and students its use. Prof. Lazarewitch's remark, that if the indicating needles showed the direction in which the head was being drawn, they did not show the direction in which it should be drawn, was difficult to justify. An experiment which M. Tarnier often made to show the value of the indicating branches was the following: "I take his forceps in my hand by the blades, an assistant then makes traction in the direction indicated by the needles, and easily pulls the forceps through my hands. I then take hold of the blades of an ordinary forceps, and an assistant makes traction in the ordinary way, but is unable to pull the instrument from my grasp, because he cannot pull in the axis of the pelvic curve." Another objection often made to Tarnier's forceps was the danger the child underwent from the compression of its head. This was not so. He and Prof. Tarnier had tightened the blades after the child had been born, and allowed them to remain for ten or fifteen minutes without causing the smallest suffering to the child in any way. The experiments of Duret showed that slow and continuous compression did not injure the brain, while sudden compression did.

Dr. Matthews Duncan (London) said that a scientifically constructed instrument was not necessarily better than a scientifically imperfect instrument which has been gradually improved by generations of practitioners in all parts of the world. A great objection to Tarnier's instrument was the constant compression of the head. He trusted it would get a thorough trial, but much must be shown in its favor before it could displace an instrument which always did its work satisfactorily.

Prof. Stephenson (Glasgow) could not accept Tarnier's modifications as improvements. Many of the defects of the ordinary forceps were increased instead of diminished in Tarnier's forceps. The muscular sense of the operator was the proper guide.

Dr. R. Barnes (London) declared himself in favor of M. Tarnier's forceps, having studied its action thoroughly. He could not assent to his friend, Prof. Lazarewitch's argument in favor of the single curved forceps. With regard to the statement of Prof. Simpson, that the muscular sense was lost by grasping the handles of the forceps, he observed that the forceps, if of proper length, was a two-handed instrument, and thus the two hands acting together, or alternately, economized force and preserved the muscular sense unimpaired, if necessary, for hours. The forceps was not used in marked pelvic contraction. So, granted a pelvis fit for the forceps, Tarnier's was applicable like any other. Prof. Stephenson's statement that Tarnier had made no improvements in the forceps was surprising. His idea that the forceps should be employed to rotate the head seemed to show that he had not yet grasped the true idea of the mechanism of labor. To rotate a head artificially would, in most cases, disorder the relation of the head to the pelvis and create difficulty. Simple traction to give progression could not fail to be followed by due rotation, just as it occurred under the natural expulsive powers.

Dr. Lombe Atthill (Dublin), master of the Rotunda Hospital, stated that he had given Tarnier's forceps a full and fair trial. The disadvantages were: the constant compression of the head, the liability of the instrument to slip, and its complexity. The instrument he preferred and always found reliable was Barnes' long forceps.

PROF. TARNIER, in replying, said the characteristic of his forceps was that no force was used in a vicious direction. In reply to Dr. M. Duncan, he had used his forceps since 1877 in all kinds of difficulties, and had always succeeded with it. The only real objection made to his forceps was that it was more complicated than the ordinary one. This was a small matter if the results obtained by it were better.

PROF. LAZAREWITCH (Charkoff, Russia), in reply, said it was only after long study and experiment that he had become convinced that the pelvic curve was not necessary. The merit of Tarnier's forceps was that it enabled traction to be made in the true axis.

DR. ROBERT BATTEY (Rome, Georgia) read a paper on

OÖPHORECTOMY—BATTEY'S OPERATION—SPAYING—CASTRATION OF WOMEN.

"This operation is peculiar, in that it has for its primary object, not the removal from the body of a diseased organ, but the abrogation of a physiological function. Whilst it is undoubtedly true that the ovaries extirpated, in the majority of instances, are structurally diseased, the end aimed at is not the removal of diseased ovaries, but it is the production of the change of life by art.

In America, the operation was introduced under the name of Normal Ovariotomy—a name badly chosen and soon abandoned. Spaying was offered and rejected, because it is not the equivalent of spaying in the lower animals. The term is inappropriate, repulsive to refined taste, and especially offensive to the subjects who have earnestly protested against it. Oöphorectomy has been rejected on the ground that it was introduced by Peaslee as a synonym of ovariotomy, and is so accepted in America. Its use suggests merely the removal of an ovary, and not the artificial menopause. Should the suggestion of Simpson, to accomplish the change of life by simple ligature of the ovaries, without their removal, be realized in practice, the term Oöphorectomy would be manifestly inappropriate, whilst the essential feature of the operation would be in no wise altered. To get over these difficulties, Marion Sims has proposed Battey's Operation, and argues that the convenience and suggestiveness of the term should overcome the objections to naming diseases and operations after individuals. In Germany, the operation is known as castration of women, a term as inappropriate and as objectionable to American sense of propriety as is Spaying.

History.—This operation appears first to have been contemplated as early as 1823 by James Blundell, of London, as has been pointed out by Aveling. Blundell, however, does not seem to have regarded his own suggestion as likely to lead to any practical results. In October, 1865, Battey conceived the idea of producing, by double ovariotomy, the artificial menopause for the effectual remedy of otherwise incurable diseases.

Upon the 27th July, 1872, Hegar did the operation, at Freiburg, with fatal results, but does not appear either to have published it to the world, or essayed it again, until four years afterwards. August 1st, 1872—Lawson Tait practised it at Birmingham, with fatal result, but made no publication of his case.

August 17th, 1872—Battey operated at Rome, Georgia, with success. He published the case in the following month, and in April, 1873, he discussed and defended the operation before the Medical Association of Georgia. He operated again in March, 1874, and a third time in June, 1874, with like success. December 18th, 1872—Gilmore, at Mobile, Alabama, followed Battey in a successful case.

Is there a Proper Field for the Operation? During the civil war in America, Mrs. H., of Mississippi, was confined of a first child. Extensive sloughing of the whole genital tract ensued, ending in occlusion of vagina and uterus. The restoration of the outlet proved impossible, and her sufferings became "intolerable and indescribable." She was entirely cured by the removal of her ovaries. A similar case, in the hands of Dr. Grange Simons, of South Carolina, died from the consequences of unrelieved menstrual molimen. Were these proper cases for the operation? To deny the conclusion is but to assert the absurd proposition, that agonizing suffering, ending in miserable death, is to be preferred to health and continued, enjoyable life. However closely we may choose to draw the lines, there certainly is a proper field for the operation.

Indications.—It was foreseen from the very inception of the operation that its sphere of applicability, in exceptional cases, must be as widely extended as the very diverse effects of the vascular and nervous perturbations which follow upon perversions of the function of ovulation. Hence, in order to cover the ground fully, and give a key for the selection of suitable cases, it was proposed:—"Ovariotomy to determine the change of life: and the change of life for any grave disease which is incurable without it and which is curable with it." Perhaps no safer rule can be laid down to-day than is embodied in the three questions:—Is this a grave case? Is it incurable by any of the resources of the art short of the change of life? Is it curable by the change of life? If all three of these questions can be answered affirmatively, the case is a proper one: but, if not, the operation is not to be justified.

That the operation, in its very essence, opens a door for widespread abuse, was foreseen from the first and has been recognized and pointed out by judicious minds everywhere. Much as we must deprecate the still existing prejudice which would offer a lifetime of untold misery, and even life itself, as a holocaust upon the altar of some supposed sanctity in female sexual organs, we cannot forget that the medical profession is to a degree the guardian of public morals, and is bound to maintain decency and self-respect. This operation, therefore, cannot in any case be received as an alternative for other means of cure, but must be held, as it was originally offered, for *dernier ressort*. It has been attempted to classify the diseased conditions, and point out with precision the circumstances in which the operation is to be done. However carefully such classification may be made, it is to be questioned whether a proceeding so open to abuse should go out to the world as a recognized remedy for amenorrhea, dysmenorrhea, menorrhagia, or any other diseased state.

Operation.—But two points call for special attention. 1st. Mode of access. In America the vaginal and abdominal methods are both in use, but in Europe the abdominal alone finds favor. For the vaginal it is claimed (*a*) the mortality is less; (*b*) it favors perfect drainage; (*c*) air is admitted to the peritoneal cavity in but slight degree; (*d*) the intestinal mass is but little exposed to mechanical irritation. To it may be objected the rather frequent occurrence of formidable adhesions, and the difficulty and even impossibility of dealing with them properly, and effecting complete removal of the ovaries. So excellent, however, have been the results, in well selected cases, this method should not be wholly abandoned, but practised only when the accessibility of the ovaries and absence of adhesions are well assured. 2d. Dealing with the pedicle. The practice of employing the ligature, simple or carbolized, with ends cut short, is wellnigh universal. Battey has in thirteen instances severed the pedicle with the écraseur alone; in no case has any troublesome hemorrhage occurred.

Proximate Results.—1st, Mortality.—In the cases collected the death rate has been 22 per cent for the complete operations, and 9½ per cent for the incomplete. 2d, Menopause.—It is a well-known fact that in exceptional cases after double ovariotomy the menses have reappeared, and this is not occasional only, but regular in occurrence and normal in characteristics. In none of these cases, however, has it been shown that a third, or supplemental, ovary did not exist, or that fragments of ovarian stroma were not left behind. In Battey's cases, when even small fragments of the ovaries were left, the menses invariably continued, and in one instance a child even was subsequently born.

Ultimate Results.—1st, Aphrodisia.—Patients who have been subjected to the operation have not in any case complained of the loss of this power, but on the contrary they have in a number of instances borne testimony to their full competency. 2d, Female graces.—These have not been impaired in any case, but a positive gain has often been noted. 3d, General health.—As the operation is proposed only as a *dernier ressort* and in cases of a desperate character, whatever of benefit is to be secured is to be accounted so much actual gain. It is hypercritical to object that some of the cases are not benefited and others are not wholly cured. Comparing the cases tabulated as complete operations, we find—

	Number.	Per cent.
Cured,	68	75
Greatly benefited,	15	17
Not benefited,	7	8
Of the incomplete operations—		
Cured,	3	18
Greatly benefited,	7	41
Not benefited,	7	41

In several instances where the results were unsatisfactory for some months (or even a year or more) the patients were subsequently much improved, and a few were even completely cured. It is premature to set down any case as a failure until ample time has been allowed for the cyclical change to have become complete in its entirety."

Dr. Thomas Savage (Birmingham) followed with a paper on the same subject.

A record was given of thirty successful operations performed during the last two years, for various conditions, which were detailed—ten being for long standing and painful prolapse of the ovary, and four for myoma. The author's experience up to the present time led him to consider that for the two above-named conditions there is a large field of successful and beneficial practice open to oöphorectomy in properly selected cases; but that in the cases of so-called ovarian dysmenorrhea there is considerable difficulty in coming to a conclusion as to the cases where it will be likely to be suitable; for it seems necessary that a considerable period must elapse after the operation, in these cases, before the benefits hoped for are apparent. The author thought the enlargement of the prolapsed ovary is often due to an inversion of the organ into Douglas' space, giving rise, in the first instance, to edema, and subsequently to areolar hyperplasia or a cystic condition. With the one exception—the inability to conceive—patients after oöphorectomy possess every attribute of womanhood. The facility and safety of the operation being now fully established, it becomes our next duty to define as far as possible the conditions for which it is applicable, also those for which it is inapplicable, so that it may not be abused.

Dr. H. O. Marcy (Boston) had watched the operations of Dr. Battey with great interest. He had done the operation himself twice, by the vaginal method. The patients recovered, but not very satisfactorily. One was in a lady who had suffered from menorrhagia and severe pelvic pain since her last confinement. Uterus retroflexed. Both ovaries dislocated downwards, enlarged and always very sensitive. After the operation it was found that the right ovary had commencing cystic degeneration, the Fallopian tube was sacculated and adherent. The menstruation remains, but in much less degree. There is still pain in the left ovarian region. Aphrodisia unimpaired. He believed that the operation had a wide range of possibilities.

Dr. Priestley thanked Dr. Battey for his paper. When he recollected the revolution which had taken place in reference to the propriety of performing operations entailing opening the abdominal cavity he was amazed. In his earlier life ovariotomy was considered as quite unwarrantable. In adopting Battey's operation for dysmenorrhea, it must be recollected that it was a confession of failure, and in some sense reminded one of the Eastern physician who, failing to relieve his patient, advised that he should be decapitated. He thought the operation might be resorted to in cases of myoma with alarming hemorrhage.

Mr. Knowsley Thornton's experience had been small, and the results various. He thought there was a good field in the direction of checking hemorrhage by the operation. The evidence of Dr. Battey and Dr. Savage as to the mortality of the operation was so conflicting that we must wait for further information. Dr. Battey gives the mortality as 18 per cent, while Dr. Savage says its safety is completely established. He had failed to relieve ovarian pain by the operation.

Dr. Martin, of Berlin, regarded the operation as dangerous and only justifiable in extreme cases. He had performed the operation seven times for fibromata, with two complete results.

Dr. Heywood Smith was in favor of the removal of both ovaries. As regarded the mode of removal, he was in favor of the abdominal section. He found that adhesions constituted a serious difficulty in the operation.

Mr. Lawson Tait showed a table of seventy cases, of which sixty-five had been done since May, 1879. He gave the following analysis of the series :

	Total cases.	Incom. Op.	Deaths
Cases operated upon for Pain :			
Recurrent hematocele, ...	1	1	0
Abscess of ovary, ...	2	0	0
Hydrosalpinx, ...	2	0	0
Pyo-salpinx, ...	8	0	0
Chronic ovaritis, ...	8	2	1
Cirrhosis of ovaries, ...	11	1	0
	32	4	1
Cases operated on for Hemorrhage :			
Hydrosalpinx, ...	1	0	0
Chronic ovaritis (hypert. of ovaries and tubes),	2	0	0
Small cystic ovaries, ...	5	0	0
Myoma, ...	26	1	5
	34	1	5
Cases operated on for reflex symptoms :			
Menstrual epilepsy, ...	3	0	0
Deformity, ...	1	0	0
Total, . . .	70	5	6

"It may be observed that four out of thirty-two cases where the operation was performed for pain, were such as to make it impossible to complete the removal of the organs ; whilst of thirty-three cases where the operation was performed for hemorrhage, there was only one case of incomplete operation. This is entirely substantiated by the details of the cases, for by far the most difficult operations were those in the first class; indeed, there was hardly one of them in which the operation was as easy as the removal of an ordinary cystoma. Many of the cases of the second class were extremely difficult, more particularly those where the operation was performed for myoma. In the five cases where small cystic ovaries were removed on account of hemorrhage, the operations were quite as easy as the removal of a parovarian cyst usually is. In the four cases of the third class the operations were equally simple.

Concerning the mortality it is to be noticed that whilst in the first class it is only 3.1 per cent, in the second it is 14.7 per cent, all of the deaths having occurred in cases where the ovaries were removed, or attempted to be removed, for myoma, the mortality in this group being nearly 20 per cent. Of the five deaths giving this result, three were due entirely to the fault of the operator, and ought not to be reckoned against the credit of the operation. As the details of these deaths have already been published, no further allusion to them is here required, save that I would say again that I do not think that in my future experience I should be likely to commit mistakes similar to those which resulted in these deaths, such imperfections being, unfortunately, a matter of necessity in the early phases of new operations. The fourth death was one of incomplete removal, in which I have reason to believe an injury to the intestine was the cause of death, though I cannot speak positively upon this, as there was no *post-mortem* examination. The fifth death was due to that peculiar paralysis of the intestines we get every now and then after ovariotomy. It is likely, therefore, that the legitimate mortality of such operations is nearer 5 than 20 per cent.

Of the third class of cases I can speak less hopefully concerning their ultimate results than of the other two, because it will always be much more difficult to select cases suited for the operation. In two of the cases of epilepsy, which have already been published, the results are extremely satisfactory, but in the third I think it is possible I may not have made a good selection. But it is of too recent date to speak positively.

My general conclusion from the whole series is that, with increased experience in operating the mortality of such cases will fall to such a rate as will justify it as certainly as any other operation in surgery; whilst from its secondary results it has, in by far the larger number of my cases, been successful to an extent altogether beyond my most sanguine expectations, the only cases of failure or of incomplete success are those where either too short a time has elapsed since the operation, or where I have, from want of experience, not attended to what I believe to be the most important point of all for the ultimate success of the proceeding—*the complete removal of the Fallopian tubes as well as of the ovaries.* I have marked nine cases in which menstruation went on irregularly for some time, on account, as I believe, of the tubes not having been removed. But even they, as time goes on, show signs of its arrest. The majority of the cases have had menstruation arrested immediately, whilst in others it has appeared for only a few months."

Dr. Bantock (London) did not think the results good in the neurotic cases. As a relief for hemorrhage, he considered the operation successful, whether for fibroma or hemorrhage from the uterine mucous membrane.

Dr. Pallen (New York) believed at one time that he was the pioneer in oöphorectomy, but Dr. Battey preceded him by a few months. He had made three operations since December, 1872, with two fatal results. The third was a case of catalepsy. He believed that oöphorectomy would ultimately find its place in surgery like all other new operations which have preceded it involving physiological and psychical causes. He advocated Dr. Goodell's dictum, that the ovaries should be removed in all insane women. The question is as yet *sub judice.* Dr. Putzel, pathologist to the New York Insane Asylum, found no trace of disease in the ovaries in over one hundred post mortems, and, on the other hand, Dr. Gaillard Thomas relates three cases of insanity and mania following oöphorectomy.

Dr. Goodell (Philadelphia) had performed the operation eleven times, and always used the vaginal incision, but should in future operate by the abdominal mode, because in two cases he had had to complete the operation by incising the abdomen. He believed the higher mortality of Battey's operation due to the healthy state of the peritoneum and its consequent greater vulnerability than in ovariotomy, and to the fact that most of the patients were opium eaters. He believed the operation would be successful in insanity with monthly exacerbations.

Dr. Matthews Duncan differed from the general tenor of most of the speakers, and regarded the operation as being in the earliest experimental stage. He pointed out with reference to oöphorectomy for bleeding uterine myomata, that a series of cases had been laid before the meeting by Mr. Tait, with five deaths in twenty-six cases. He knew of no such bad results in fibroids under any kind of treatment, and was sure that such disasters were unequalled in the history of the subject.

Dr. Domingo de Montbrun (Paris) rose to say that he entirely agreed with the views entertained by Dr. Priestley. He proposed that the operation be called castration of women, in order that practitioners should not lose sight of the moral gravity of the proceeding. He viewed the operation much in the same light as Dr. Duncan.

Dr. Battey, in reply, expressed his deep sense of the exceeding leniency and kindness with which this section, and especially that eminently conservative body, the British medical profession, had received his suggestions and his work, and also the generous hospitality he had met with. Dr. Matthews Duncan was in error in supposing he aimed at the arrest of menstruation by the operation ; it was the arrest of ovulation which he sought.

Dr. Thomas Savage replied that he thought the section ought to be congratulated on the eminently interesting and satisfactory discussion that had taken place. In reply to Dr. Goodell, he said the mortality ought to be very small indeed, and that it was not due to the profound emaciation, etc., spoken of by Dr. Goodell.

PROF. ALEXANDER RUSSELL SIMPSON (Edinburgh) introduced

A PROPOSAL FOR A COMMON NOMENCLATURE IN OBSTETRICS.

"The anatomical or topographical relations are the only satisfactory common basis. Numerical terms are to be avoided. Nomenclature of—

1. The Factors of Labor: *a*, Power; *b*, Passages; *c*, Passenger.
2. The Diameters (*a*) of pelvis;
   (*b*) of fetal head.
3. The Relation of the Passages and the Passenger.
   (*a*) Presentation or Lie—head;
   —pelvis;
   —trunk.
   (*b*) Position—

Left { occipito { anterior.
posterior.
Right { sacro { posterior.
acromio { anterior.

4. Movements—

Flexion. Extension.
Rotation. Restitution."

PROF. HORWITZ (St. Petersburg) said Prof. Simpson's proposition was not realizable because it necessitated uniformity in the mode of looking at scientific facts.

DR. A. F. A. KING (Washington) spoke of the necessity of defining the obstetrical vertex which he considered to be a circle around the centre of the occipital pole of the head. He also mentioned that the termination of the first stage of labor should be the extrusion of the head through the os uteri into the vagina rather than full dilatation of the os.

DR. BUDIN supported Prof. Simpson's proposition, which he considered would be of great value.

A committee was then appointed consisting of Drs. Budin, France; Halbertsma, Holland; Hennig, Germany; Hubert, Belgium; King, America; Mangiagalli, Italy; Simpson, Great Britain; Slavjansky, Russia; Stadtfeld, Denmark, to draw up a scheme for a common nomenclature in obstetrics to be considered in the obstetrical section of the next meeting of the International Medical Congress; the representative of each country to consult with a committee of his fellow-countrymen.

Proposed by Prof. Simpson; seconded by Prof. Stephenson, and carried.

ON A POINT IN THE DIAGNOSIS OF OVARIAN TUMORS.

By DR. SLAVJANSKY (Russia).—The author directed attention to a symptom enabling the diagnosis of the side from which an ovarian tumor might spring to be made out more clearly than usual. It is that, if the sensibility of the two sides be compared, it will be found that it is less acute on the side of the affected ovary. He then gave five cases which had been operated on, in all of which the side from which the diseased ovary had grown had been correctly made out by the impaired sensibility discovered on that side in the inguinal region. He could not explain the symptom.

PROF. KÜSTNER (Jena) referred to Schultze's method of diagnosing large ovarian tumors. (See *Centralbl. für Gyn.*, 1880.)

DR. MARTIN (Berlin) read a paper on the

OPERATIVE TREATMENT OF EXTRAUTERINE PREGNANCY.

He recommended the ligature of the placental insertion, and the removal of the upper portion of the sac, and the closure of the remainder, which is to be drained through the vagina. He was convinced that in this manner the operation was simplified, and a better chance given the patient to recover.

DR. GRAILY HEWITT (London) read a paper on

THE EXCITING CAUSE OF ATTACKS OF HYSTERIA AND HYSTERO-EPILEPSY.

"The object of the paper was to demonstrate by the results of clinical observation that in cases of hysteria and so-called hystero-epilepsy the exciting cause of the attacks is distortion of the uterus, produced by flexion of the uterus upon itself either forwards or backwards.

The attacks are the result of reflex irritation, the irritation consisting in the physical compression and tension of the tissues of the uterus, consequent on the forcible bending of the body of the uterus on the cervix. This bending has the effect of producing compression of the uterine tissues at and near the angle of flexion, and, by its interference with the circulation in the uterine tissues, it has the further effect of producing a continuous congestion of the body of the uterus."

The evidence offered by the author in support of the above explanation was the recital of eighteen cases observed by him during a period of ten years. In these cases, some of which were cases of severe attacks of hysteria, others identical with those described as cases of hystero-epilepsy, and a few in which the symptoms were of a less severe character, the condition of the uterus was carefully investigated.

Marked distortion of the uterus was present in all the cases, the most severe cases being those in which the uterine distortion was greatest.

Complete relief from the attacks and hysterical symptoms was obtained in these cases by a treatment directed to the removal of the uterine distortion. Out of eighteen cases perfect relief is known to have been obtained in seventeen; the subsequent history is not fully known in one case.

Of the eighteen cases related, twelve were cases of anteflexion of the uterus, and six were cases of retroflexion.

The complete cessation of the hysterical symptoms in the cases related, and the uniform success of treatment directed to the rectification of the shape and position of the uterus conclusively show, in the author's opinion, that the exciting cause of the attacks was the flexed condition of the uterus."

Dr. Arthur W. Edis (London) read a paper on

THE INFLUENCE OF UTERINE DISORDERS IN THE PRODUCTION OF NUMEROUS SYMPATHETIC DISTURBANCES OF THE GENERAL HEALTH AND AFFECTIONS OF SPECIAL ORGANS.

"Dr. Edis directed attention to the prevalence of sick-headaches, often extending over many consecutive years, due entirely to some uterine disorder. Evidence of this was given, headaches of many years' duration having disappeared when some unsuspected uterine disorder was removed, other more general remedies having entirely failed to afford relief.

The morning sickness of early pregnancy was shown to be frequently dependent upon some flexion, inflammatory condition of the body or cervix of the uterus, or some well-recognized uterine disorder. Relief was obtained by directing appropriate treatment to this latter condition.

Uterine epilepsy frequently depended upon ovarian irritation, flexion producing dysmenorrhea, or other well recognized form of ovarian or uterine disorder.

Other neurosal affections, such as asthma, neuralgia, and chorea, were not infrequently dependent upon some overlooked uterine disorder.

Amaurosis, asthenopia, and numerous other pathological conditions of the organ of vision were often found to be due to morbid conditions of the uterus.

Aphonia, spasm of the glottis, sensation of chocking, and other similar reflex phenomena were often traced to alteration in the position or condition of the uterus."

Dr. Heywood Smith thought the most logical way of treating the symptoms caused by retroflexion was to begin with the last and work back, rather than at once attack the flexion itself. It was his practice to allay the engorgement and tenderness first, and then resort to the mechanical treatment afterwards. He had seen mischief and even death from the replacement of the uterus and introduction of a pessary, the uterus being in an inflamed condition. This was the more essential as stem pessaries often had to be used.

Dr. Byrne (Dublin) had listened with attention to the papers by Drs. Graily Hewitt, and Edis. He could not believe that all the formidable symptoms narrated by Dr. Hewitt could depend on displacement and would vanish on the introduction of a pessary.

Dr. Mundé said that it could hardly be doubted that displacements and flexions of the uterus often produce reflex nervous and neuralgic affections of different parts of the body, and more or less pronounced mental aberrations. But other diseases, such as areolar hyperplasia or chronic metritis, played quite as prominent, perhaps a more prominent part than flexions and displacements. He related a case in which laceration of the cervix appeared to be the cause of syncope during coition and digital examination. Compression of the ovarian region (Charcot) always roused the patient from her paroxysm. This and other hysterical phenomena were removed by Emmet's operation.

Dr. Graily Hewitt, in reply to Dr. Byrne, stated that anteflexions were, according to his view, most important, and produced very troublesome symptoms and effects.

Dr. Robert Barnes (London) gaves his views

ON THE TREATMENT OF PUERPERAL HEMORRHAGE.

"The author gave a rapid glance at the conditions which predispose to hemorrhage, the physiological conditions which oppose hemorrhage, and showed how disorder of these conditions entails hemorrhage.

He took as a starting-point *physiological puerperal hemorrhage*, viz., the loss of the excess of blood which, having served in the nutrition of the fetus, is expelled from the uterus during and after the detachment of the placenta.

Any loss beyond this becomes *extra-physiological hemorrhage*, and requires the assistance of the physician to check it.

He enumerated the hemostatic powers of the uterus; irritability, retractility, and contractility. Irritability derived directly from the ganglionic centres. Contractility derived from the spinal and cerebral centres. To affect these two sources, it is necessary to act in different ways.

He enumerated the modes adopted by nature for the repression of hemorrhage. 1. The regular and continued contractions of the uterus. 2. The coagulation of blood in the vessels of the uterus. 3. The reduction of the cardiac pressure, sometimes almost to syncope. 4. The turning aside of the blood-flow from the generative organs.

To guide in the choice of remedies, the author divided hemorrhage into different degrees. 1st degree. The diastaltic function is maintained intact, but its action is disordered. 2d degree.—The diastaltic force is markedly diminished. 3d degree.—The diastaltic force is suspended.

Application. In the first degree it is endeavored to secure contraction of the uterus by the aid of cold, heat, ergot, and the rest. In the second degree, recourse is had to the same order of remedies, but with more discretion, inasmuch as they are all capable of overtaxing the remaining powers of the patient. The author analyzed the relative powers of ergot, heat, and cold. In the third degree, remedies useful in the first two stages are often harmful. In this extremity appeal is made to the innate retractility of the uterus, which survives the loss of reflex contractility. He discussed and rejected faradization. In the absence of muscular contraction an equivalent may be found in the corrugation of the internal surface of the uterus by styptics. He compared the two best known—iron and iodine. Iodine, sometimes useful, often disappoints the physician. The author, therefore, trusts to iron. He traced the conditions under which iron should be employed; the preparation and method of its application; the dangers attending its use; and the way to avoid them. He analyzed the dangers of uterine injections, ferruginous or others, and showed that the dangers peculiar to iron injections are few, and, for the most part avoidable.

The general conclusion of the author was that iron injections are capable of rescuing women from the dangers of hemorrhage when all other means have failed."

DR. THOMAS MORE MADDEN (Dublin) read a paper on the same subject.

"Death from flooding after delivery should be considered as a generally preventable accident, and in the more perfect midwifery practice of the future will doubtless be entirely unknown. In their zeal to contribute to their complete deliverance from what is still, with too much reason, an ever-present terror to obstetric practitioners, some eminent modern authorities, who advocate the employment of perchloride of iron and other remedies on the least appearance of post-partum hemorrhage, appear to have an exaggerated idea of the frequence of severe flooding, and to forget that some slight loss of blood is a naturnal termination of labor. When due care is taken in the way of preventive treatment, fatal hemorrhage is a comparatively rare accident. Thus, in a practice of upwards of twenty years in various countries, tropical as well as European, and during his connection with the largest lying-in hospital in Great Britain, Dr. More Madden has only seen one case of death from hemorrhage after child-birth.

We may almost always obviate, although we cannot yet always arrest flooding. The majority of cases of post-partum hemorrhage are met with in women who have previously borne children, and the probability of its occurrence is in proportion to the number of the patient's previous confinements. In the Dublin Lying-in Hospital, of 89 cases of this kind, in 65 the patients were multiparæ. In such cases, when we have any reason to anticipate hemorrhage, the membranes should be ruptured as early as possible during labor, so as to allow the uterus to contract gradually and firmly; and a dose of ergotine, or a drachm of the fluid extract of ergot, should be injected hypodermically before the head comes to press on the perineum. As a prophylactic of hemorrhage, the efficacy of a course of any astringent preparation of iron given during the last months of pregnancy is unquestionable.

Hemorrhage after delivery, from laceration of the cervix uteri, is more common than was formerly the case. This arises from the abuse of the long curved forceps which is now too often needlessly resorted to before the full dilatation of the os. Hence, Dr. More Madden thought that in this way the abuse of the long forceps does as much harm as the use of the short, straight forceps does good in judicious hands.

Reviewing his experience of the various modern methods of arresting flooding, the writer said that the injection of hot water into the uterus in such cases is most uncertain in its hemostatic action, and is only useful in cases of extreme depression of the vital powers from excessive hemorrhage, and after the failure of other remedies. Neither is the injection of cold or iced water to be depended on. The injection of a strong solution of perchloride of iron, although generally effectual as a styptic, is so hazardous, from the risk of its causing metro-peritonitis, that the writer now seldom resorts to it. But he strongly recommended what he regards as a most effective and comparatively safe method of arresting post-partum hemorrhage—namely, the introduction of a sponge soaked in a solution of the perchloride of iron which is to be passed into the uterus (grasped in the accoucheur's hand), and retained there until a firm contraction is produced, by which the sponge and the hand in which it is held are expelled together from the uterine cavity, and the flooding is stopped. At the same time he lays great stress on external manual pressure over the uterus in all cases until contraction is produced; and he pointed out the possible danger of thus introducing the hand into the uterus, unless when rendered necessary by severe hemorrhage. With regard to the treatment of collapse from hemorrhage after delivery, he regarded transfusion, as now practised, as almost useless in the great majority of cases of the emergency for which it is recommended. Instead of transfusion, he advocated the hypodermic injection of large doses of sulphuric ether, as suggested by Van Hecker; and he referred to the history of some remarkable instances of the good effect of this remedy in apparently hopeless cases of collapse from post-partum hemorrhage."

Dr. De Montbrun (Paris) said that Dr. Barnes' views, respecting physiological puerperal hemorrhage, are very correct. He should like to see them more widely spread, in order to reassure younger medical practitioners. There are other causes of hemorrhage after parturition, namely laceration of the cervix uteri, or of the walls of the vagina and rupture of the perineum. It is to be hoped with Dr. More Madden that, in the most perfect midwifery of the future, death from post-partum hemorrhage will be entirely unknown. In tropical climates the symptoms are most formidable and the dangers to life much more imminent on account of the constant heat, profuse perspiration, and malarial effluvia which disintegrate the blood, make it poor in red corpuscles and less plastic. In cases of extreme hemorrhage he plugged the vagina and compressed the uterus upon the plug with both hands over the abdomen.

Prof. Winckel (Dresden) recommended the injection of ether under the skin of the abdomen. This restored the heart's action and improved the tone of the blood-vessels. The odor of the ether is detected in the breath within two minutes after the injection. The second remedy upon which he most relied was the auto-transfusion obtained by the application of Esmarch's bandages to the legs and arms.

Dr. Beverley Cole (San Francisco) said we were not authorized to wait for the action of such remedies as lemon-juice, alum, ice, hot water, and perchloride of iron, but we were called upon to use that which nature supplied every man with, namely the *hand*. Empty the uterus of all coagula, seize the uterus through the abdominal walls and so hold it as to cause its opposing sides to come together and thus compress the bleeding vessels. Compress also the aorta. He wished to be particularly understood to attach no importance to the kneading of the uterus so commonly recommended by European practitioners. He was uncompromisingly opposed to any injections of iron, because embolism and thrombosis are liable to result from them.

Dr. John A. Byrne (Dublin) said, although Dr. Beverley Cole had ridiculed the carrying into the sick-chamber all the appliances necessary to meet emergencies, he must confess that he never went to any distance from his home without carrying everything that might be required to meet any difficulty that might arise. There was one remedy without which he never went, and that was perchloride of iron. He had saved lives by the perchloride when all other remedies had failed.

Dr. Matthews Duncan said that for hemostasis he trusted exclusively to uterine retraction. Styptics were therefore, in his opinion, of no use. Kneading and compression formed ninety-nine per cent of our available means for arresting hemorrhage. The intra-uterine injection of perchloride of iron he regarded as more dangerous than the condition it was intended to obviate.

Dr. P. Budin (Paris) considered that the proper mode of managing the third stage of labor constituted what might be called the preventive treatment of post-partum hemorrhage. As regards the treatment of the hemorrhage itself, one should be prepared to employ any or all of the known remedies. The hemorrhage must be arrested at any price. The consecutive treatment was also important, and here he found the subcutaneous injection of ether an important restorative. He thought Esmarch's bandages as recommended by Prof. Winckel might also be useful.

Dr. Playfair (London) wished to draw attention to the extreme importance of prevention. If he heard of a man always having hemorrhage in his practice, he concluded that that man either did not know or did not practise the proper management of the third stage of labor. As to the use of iron injections, he felt that in the very few severe cases where they were necessary they were of great value. He agreed that in ninety-nine out of every one hundred they were not wanted, but in the one hundredth case nothing else would save life.

Dr. Jones-Morris (England) said, as a country practitioner he had never seen a case of post-partum hemorrhage, because he always gave ergot and compressed the uterus. In one case, while he was wondering what to do, the patient fainted, and we must remember to try and follow nature as much as possible and bear in mind that there is a tendency in the process of fainting to stop the hemorrhage.

Dr. Edis (London) thought the key-note to the treatment of post-partum hemorrhage was the preventive treatment. During pregnancy the patient's general health should be attended to. She should be sustained during the process of labor by suitable nourishment. The membranes should be ruptured as soon as the os is sufficiently dilated. The due management of the third stage. Given these, hemorrhage was unlikely, but if it occurred and could not be arrested by the ordinary means, as ergot, ether, hot and cold water, and the condition so graphically described by Dr. Barnes supervened, then the injection of iron was the only means at our disposal to snatch the patient from imminent death.

Dr. Quimby (Jersey City, U. S.) agreed with Dr. Playfair that most of the worst post-partum hemorrhages resulted from bad management of the third stage of labor. He always, in patients liable to bleed, commenced constitutional treatment some three or four months before labor. He relied on external and internal manipulation with the hand in the uterus to control hemorrhage. He thought iron injections difficult and often useless, as they were cancelled by the presence of clots in the uterus and did not consequently reach the uterine walls.

Dr. Rothe (Altenburg, Germany) relied chiefly on contraction of the uterus. To secure this he employed cold water externally in the form of a rain-douche to the abdominal walls and lower part of the spine. He saw danger in iron injections and had lost a patient by them in whom he had twice on previous occasions arrested bleeding by injecting iron solution into the womb.

Dr. Mundé remarked that the whole question seemed to resolve itself into the single axiom, that in a case of post-partum hemorrhage every means at hand should be used to check the flow, beginning with the most convenient one. Thus vinegar, hot and cold water, friction and compression, solution of iron, and electricity, will at times all prove efficacious. He had used a weak solution of iron once, tincture of iodine twice, and in one case compression of the placental site between the fist in utero and the other hand outside for more than two hours before he dared withdraw his hands; all these cases recovered. But preventive means were really the important point in the consideration of this accident. Several rules should always be observed: 1. Always keep the supporting and compressing hand on the fundus uteri from the moment the head appears at the vulva until the placenta has been expelled. 2. Do not hasten the expulsion of the placenta too much, but by steady gentle friction of the fundus endeavor to secure its total spontaneous detachment, the occurrence of which can easily be detected by the uniform, firm outline of the contracted uterus on palpation. 3. Always watch the uterus by the hand, using gentle friction for at least an hour at intervals before leaving the patient. 4. Always give ergot by the mouth as soon as feasible after the birth of the child, and if the labor has been unusually tedious, or chloroform has been given for an operation, give the ergot hypodermically, injecting to the depth of one inch near the umbilicus. It is well to have the hypodermic syringe ready filled for every labor. 5. Always have hot water on hand. 6. Always make sure that the uterus contains no coagula. If these rules are observed, a serious case of post-partum hemorrhage will be very rare.

Dr. McClintock said promptitude and energy in applying the remedies were of the utmost value. His estimate of the perchloride of iron was very high, and he had used it in a certain number of cases. It was dangerous, but desperate cases required desperate remedies. No speaker had alluded to the influence of chloroform in predisposing to post-partum hemorrhage, but his deliberate conviction was that it did so to a very considerable extent. As regards the preventive treatment, he had found great benefit from the use of gallic acid some days before labor.

Dr. Barnes in reply expressed his thanks that so many distinguished men had helped him in the elucidation of the important question before them. The discussion had not, however, been very strictly limited to the question of treatment. It had diverged into questions of causes and prevention, so that the main object he had in view, namely, that of pointing out that there were distinct physiological indications for the employment of the several remedies in common use, had not been discussed. Dr. Duncan said contraction only could be relied upon to control hemorrhage. Every one agreed that it was the best factor, every effort was made to secure it. But Dr. Barnes affirmed most emphatically that iron injections would arrest hemorrhage and save life when contraction could not be produced. He had not used Esmarch's bandages as recommended by Dr. Winckel, but he would certainly do so. Nothing had pleased him more than the decisive clinical testimony borne in favor of his practice by the Dublin school, which he regarded as the greatest in Great Britain.

Dr. More Madden, in reply to Dr. B. Cole and Dr. M. Duncan, said that any one refraining, from prejudice or undue timidity, from using the perchloride injection in severe hemorrhage, and allowing his patient to die from unarrested hemorrhage, would be as morally responsible for her death as a man who would stand quietly by on the bank of a stream while a fellow-being was drowning, when by stretching out his hand he might have rescued him from death.

Dr. George Roper (London) read a paper on

TRISMUS AND TETANY OF THE UTERUS IN LABOR.

"The author selected his subject because of the rarity of the condition, the danger attending it, and the want of reference to it in English text-books.

After quotations bearing upon it from the writings of Simpson and of Spiegelberg, the author defined tetany as an affection of the body of the uterus, coming on at the end of protracted labor; trismus as an affection of the neck of the uterus, observed in the early stage of labor. The latter was the subject of the paper.

He quoted three cases from Smellie, and then narrated four which had occurred in his own practice, of which the following are the important points:—

Case I.—Primipara; labor at end of eighth month; central placenta previa; hemorrhage; artificial rupture of membranes and separation of cervical zone of placenta; trismus of cervix; cervical dilators used under anesthesia without effect; separation and removal of entire placenta; decomposition of fetus and physometra; delivery by podalic version; death two hours after delivery.

Case II.—Eleventh pregnancy; labor near end of seventh month; early rupture of membranes; partial placenta previa; face presentation: prolapse of funis; hemorrhage slight; trismus of cervix; failure of attempts to dilate cervix; decapitation; cephalotripsy; subsequent perimetritis; recovery.

Case III.—Primipara; transverse presentation; partial placenta previa; hemorrhage; trismus of cervix; separation of placenta within reach of finger; podalic version; evisceration; laceration of cervix in extraction of head; death two hours after delivery.

Case IV.—Second pregnancy; labor at end of seventh month; severe hemorrhage; central placenta previa; transverse presentation; trismus of cervix; podalic version; death before extraction could be completed.

He then enunciated the following propositions concerning this condition:—Trismus of the cervix occurs at an early period of the first stage of labor. It occurs most frequently in premature labors, when the cervix and lower segment of the uterus are not fully developed. It is commonly associated with malpresentations. In such cases rectification of the malposition of the fetus is not followed, as it usually is, by uterine action, but the body of the uterus remains quiescent, and the spasm of the cervix continues. Even if trismus of the cervix be associated with tetany of the body of the uterus, there is no tendency towards expulsion of the fetus. Although with trismus of the cervix there is apparently no uterine action, yet it is accompanied by a process of exhaustion which tends to produce death. It occurs often, probably more frequently than with any other complication, with placenta previa; the implantation of the placenta over the inner os tending to excite an unnatural degree of cervical polarity, as well as producing structural changes in the cervix. In the cases recorded in which trismus of the cervix existed along with placenta previa, hemorrhage was not important as a cause of death. Treatment was exceedingly difficult; the methods of treatment which were recommended, and from which good might reasonably be expected, the author had found valueless."

Prof. Simpson regretted that, in the cases which Dr. Roper had adduced from his own experience, there was room for doubt as to whether they were really illustrative of a true trismus or spasmodic contraction of the cervix. They were all cases of placenta previa. The cervix he believed to be perfectly passive during labor, and the only cases where he had ever met with any trismus in it, were those in which the sphincter of the os internum was in a state of spasmodic contraction. He had overcome the trismus in one case by long-continued traction on the head with an axis-traction forceps.

Dr. Braxton Hicks wished to point out the great importance of recognizing this condition. The author of the paper had scarcely explained whether the trismus extended from the os to the whole body of the uterus, or whether it involved only the os and lower uterus. Dr. Hicks thought it was general, springing from impediment at the os.

Dr. M. A. Pallen (New York) read a paper on

THE REPARATIVE SURGERY OF THE GENITAL TRACTS.

"Nature of the accident or deformity requiring treatment—congenital or acquired.

Congenital causes explained by teratological facts based upon the study of embryology. An arrest of embryonic development, a fixation of a perfectly normal transitory state, results in a permanent anomaly materially affecting the future generative functions. The converse of this is equally productive of mischief, as an excessive developmental impetus results in a non-symmetrical, anatomical, and physiological correlation, and determines an increase of one or more of the factors of copulation, generation, or parturition evidenced by the presence of a double uterus and vagina, or a double vagina and single uterus, or the absence of the vagina with rudimentary uterus and well-developed ovaries, etc.

The faulty internections of the bladder, vagina, rectum, uterus, oviducts, and ovaries indicate certain relations that are invariably attended with either dyspareunia, dysmenorrhea, sterility, or dystocia.

Embryological facts cited to sustain these theories.

Study of the formation and functions of the vagina, the vagino-cervical spaces, vesico-vaginal and vagino-rectal connections, and the vagino-perineo-rectal fusions. When no increase either of vascular, muscular, or connective tissue takes place, the vagino-cervical fusions are mutually sustentative and supporting, and it is only when the correlation of place and order is destroyed by pathogenetic causes, that we are called upon to treat post-pubertic lesions, whilst congenital (teratological) abnormities constantly require surgical interference.

Faulty implantation of the vagina upon the cervix uteri, the anomaly of excessive vaginal dimensions or pseudo-hypertrophy of the intra-vaginal cervix is invariably associated with sterility, and usually with dyspareunia or dysmenorrhea.

The converse of the above, or defective vaginal dimensions (the so-called infantile neck), is likewise inductive of dysmenorrhea, sterility, and prolapse of both uterus and vagina. Methods of operating for the relief of these conditions with illustrative cases.

The acquired conditions, resulting in deformity requiring plastic or reparative operations, ensue from parturition—some few are the sequences of pathogenetic causes unassociated with pregnancy. Illustrative cases and new methods of operation for the relief of cystocele, rectocele, uterine and vaginal prolapse, and procidentia, as well as lesions associated with lacerations of the cervix or sundering of the perineum, or disruptions of the peri-uterine connective tissue were presented."

PROF. SPIEGELBERG (Breslau) being absent, his paper on

ANTISEPSIS IN MIDWIFERY

was read in abstract.[1]

"The great reform in surgery brought about by the antiseptic treatment could not fail to have a deep influence upon the treatment of the complications in childbed, as it was well known long ago that the latter are the same which arise from wounds. If, however, scrupulous cleanliness, which had been advocated long ago, favored a normal course of the puerperium, the practical gain was not very great.

The idea that the puerperal wounds are infected, and the inflammation of the genital organs are initiated by germs coming from outside, became more in vogue, and the idea that phlogogenous matter might be produced spontaneously within the genital tract, was almost abandoned. The consequence of this idea was recommending the most scrupulous cleanliness of hands and instruments; forbidding practitioners engaged in midwifery to attend other patients; forbidding students engaged in dissecting to attend midwifery cases; forbidding nurses attending cases of puerperal fever to attend normal cases at the same time.

The experience that all these measures reduced the number of bad cases only little originated the idea of secondary antisepsis. Intrauterine irrigations and drainage came in use, but without much avail; the opinion took root that there was no identity between wound and childbed complications—that there existed an essential puerperal process.

These failures can be made comprehensible by laying clearly open the development of infection; and here, too, it is necessary to refer to the history of antiseptic surgery.

The theory and practice of Lister's system is founded upon the view now sufficiently justified by experience, that infection is brought about by the action of germs which float about in the surroundings of the patient, and which fall on the recently made wound. It is, therefore, absolutely necessary to clean the surroundings from the germs: if that is not practicable, to destroy the efficiency of these germs while the wound is open, and by keeping subsequently the wound closed. The application of these rules upon the puerperium means: The strictest cleanliness and antisepsis during the time in which the puerperal wounds arise—that is, during birth—as well from the part of the persons attending the mother as from the mother herself. Prevention of air entering the genital tract; and, as that is not wholly unavoidable, disinfection by frequent irrigation with antiseptics during birth. After birth, care must be taken to secure perfect rest for the genital tract to encourage involution, avoiding every intravaginal or intrauterine manipulation which is not absolutely necessary; if so, it must be done under strictly anstiseptic precautions.

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[1] The death of Prof. Spiegelberg occurred at Breslau, August 10th. His obituary notice will appear in the January, 1882, number of this JOURNAL.—ED.

Secondary antisepsis—that is, antisepsis after the infection has taken place—is not of much avail. It is only directly useful in processes of decomposition, so long as they have not passed the surfaces of the tract, and not yet attacked the parenchyma of the organs. But if that is not the case, antisepsis is only a palliativum, but no trustworthy remedy, since drainage and irrigation do not hit the deep seats of the disease, and do not remove or destroy the entered germs, not to speak of the inconveniences of the practical application of the secondary antisepsis."

PROF. WINCKEL said that all the midwives under his direction had printed antiseptic instructions given them. All catheters, vaginal tubes, diapers for washing the genitals, and other instruments used by them were always kept lying in a two-per-cent solution during use. Examinations were made by the finger dipped in a two per cent carbolic oil. In the event of a death or several cases of puerperal fever occurring in the practice of any midwife, she is not allowed to deliver any more patients for fourteen days.

DR. W. L. REID (Glasgow) had taken special interest in the subject. He believed normal labor a perfectly aseptic process. In abnormal and operative midwifery, the case was quite different. Air is then taken, not only into the vagina, but into the uterine cavity itself. There is then a great probability that decomposition of the fluids will ensue, and possibly septicemia. Antiseptics, to insure perfect safety, must be used both in normal and abnormal labor. The slight feverish attacks from which many women suffer after labor are really due to septicemia, and are fertile causes of sterility. He used a one in twenty solution of carbolic acid in oil at every examination.

DR. FANCOURT BARNES said that in the British Lying-in Hospital all his patients were delivered under the carbolic spray. This not only disinfected the hands of the nurses and midwives round the patient, but prevented the entry of any poisonous germs into the vagina at the moment when it was distended and opened by the exit of the child. The vagina, in all cases, was syringed with a one in forty carbolic solution. A one in eighty spray was always playing in every ward. All washings of the genitals were done in a one in eighty carbolic solution. The wards were disinfected by burning sulphur, and washed in a one in eighty carbolic solution. Each patient had a mixture for the first week after delivery, containing ergot, opium, and quinine, with dilute phosphoric acid. Since there had been instituted the above-named precautions, it was the rule for the patient to go through labor and the lying-in without any rise of temperature; whereas formerly there was always febrile disturbance on the third or fourth day.

Prof. Vincenzo Maggioli (Rome) agreed with Professor Spiegelberg that it was of great importance to prevent puerperal infection, by endeavoring to purify the air of poisonous germs. Even when the antiseptic precautions were carefully adopted, there would always be cases of puerperal infection arise. He recommended iodoform in doses of two to three grammes.

Dr. Graily Hewitt would limit his observations to certain practical principles in the prevention of septic action after parturition. As regards prevention of introduction of septic matter from without, the rule should be to use the nail-brush assiduously in all midwifery cases. Other precautions, which had already been mentioned, he would not repeat. Very many cases, according to his opinion, were cases of septic action arising from within. Some cases resulted from too complete rest on the back during the first few days after labor. Septic fluid then collected in the vagina, and readily found its way into the blood through any slight laceration that might exist. Dr. Goodell, of Philadelphia, had, he thought, done good by insisting on the necessity of draining the vagina, by altering the position of the patient. The next point he would allude to was the drainage of the uterus. In order to secure this, good contraction must be secured. To produce good contraction, the forces of the patient must be kept up by food of good quality.

Dr. Edis controverted some of the statements made in the abstracts read. Assuming that infection resulted from the action of germs floating about, we could not be too careful in keeping the atmosphere of the lying-in room as fresh and as pure as possible. Employing carbolized oil for examination, washing the hands and cleansing the nails most scrupulously, removing all soiled linen at once, not leaving the patient soaking in her secretions for two or three hours after labor, and insisting generally upon the utmost cleanliness. The habit of keeping the patient lying rigorously on her back for a week or two following parturition was a very injurious one. The lochia accumulated in the posterior cul-de-sac of the vagina, and often proved a most potent source of evil. The patient should be allowed to sit up to pass water morning and evening from the first day, to expel all coagula or accumulations from the vagina. The syringe, with weak carbolic acid (one in forty), or other disinfectant, should be employed to wash out the vagina at least twice daily. All soiled linen should be immediately removed from the room and placed in water with carbolic acid. The windows should be opened daily, and sufficient ventilation of the room at night secured. The employment of the carbolic spray was impracticable, as a rule, in private, and in the present unsettled state of the question it was doubtful whether its employment was advisable.

PROF. LAZAREWITCH said infection during the lying-in state might arise from more or less decomposing matters finding themselves in contact with wounded blood-vessels and lymphatics. The prevention of infection was secured by keeping the uterus and vagina free from blood-clots. The womb was often in a state of flexion ; it was then necessary to replace it and compress it, in order to express anything which it might contain. Midwives should perform all their manipulations as carefully as possible, in order to avoid any wounding of the genital organs, and consequent infection from without.

PROF. TARNIER said that, in 1865, when he was interne at the Maternity, there was a mortality of about five in one hundred ; to-day this was reduced to two in one hundred in the hospital, and to seventy-five one-hundredths in one hundred in a pavilion which he had had constructed a few years ago. In this pavilion each chamber was absolutely cut off from all the others, the only entry to each being from an outside door, so that it was impossible to go from one room into another without passing through the open air. The ceiling, floor, and walls were impermeable, and could be washed with water. All the furniture was of iron. The mattress, pillows, and bedding were stuffed with oat-chaff, so that once used they could be emptied and washed. Everything was washed in the room, including the walls and ceiling, and the bedding re-stuffed, so that the fresh patient found everything new. The patients remain until the end of their recovery on the bed on which they were delivered. The mattress was protected by thick sheets of brown paper, made waterproof with a layer of pitch on one side ("the ordinary papier goudronné de l'emballage"—water-proof packing paper). The paper was cheap, and was burned after being soiled. With regard to disinfectant solutions, he had made the following experiment : He had placed pieces of placenta in the following solutions—liquor of Van Swieten (bichloride of mercury at one one-thousandth), boric acid (forty grammes per litre), and in others. . In all except the mercury and boric acid solutions, living organisms appeared in a few days. He had great confidence in the parasiticidal action of bichloride of mercury. Whenever he had reason to think his hands were "suspicious," either at the hospital or at home, he washed them in the bichloride of mercury solution. His pupils did the same, and they had never experienced any symptom of mercurial poisoning. The catheters were always kept in carbolic solution. To prevent the implantation of the germs in the air into any wounds produced at the moment of expulsion, he makes the midwife anoint the fetal head with a one-tenth solution of carbolic acid, each time it appears at the vulva. He thought this superior to the carbolic spray, because the spray, when kept up for hours, was apt to be too cold for the patient. The washings were done with carbolic solutions. He never employed vaginal or intrauterine injections, unless the case was not doing well. He had employed the antiseptic dressing to the umbilical cord. The cord dried up rapidly, and gave out no unpleasant odor, but it took a tediously long time to fall off, from ten to fifteen days. This alarmed the mothers, and retarded their exit from the hospital, and so he had given up the dressing.

Dr. J. HENRY BENNET (Nice) read a paper

ON LACERATION OF THE CERVIX UTERI—ITS CAUSES AND TREATMENT.

"During the last few years a new autoplastic operation has been advocated by several eminent gynecologists, and especially by Drs. Emmet and Pallen, of New York, for the cure of laceration of the cervix uteri occurring during parturition. This operation was not merely recommended in extreme cases, but for every form of laceration, severe or light. Dr. Pallen had found two hundred cases of laceration among nine hundred patients examined for female disease, and appeared to think that all these cases demanded the autoplastic operation. According to these views, a considerable portion of the uterine ailments to which women are liable, inflammation, menorrhagia, displacements, etc., are to a great extent occasioned by this lesion, simple or double, and are only to be radically cured by a serious and delicate autoplastic operation. Dr. Bennet quite agreed with these eminent authorities as regards the frequency of laceration of the cervix uteri during labor, and had pointed out this pathological fact long ago, in 1849, in his work on Uterine Inflammation, second edition, page 25, and in the third, page 185, at still greater length, although admitting that these lacerations during parturition were often the result of manual or instrumental interference, the cervix being healthy at the time. He then stated that the principal cause was previous inflammation and induration of the cervix, non-softened during the latter period of pregnancy. This morbid condition at the moment of labor gives rise to rigidity of the os, of which it is the principal cause, and subsequently to laceration. He was led to this conclusion in an early period of his obstetrical career, between thirty and forty years ago, by careful observation. He was always in the habit of examining instrumentally, six weeks or two months after labor, all females who had presented morbid symptoms during pregnancy, parturition, or the puerperal state. He thus, early in life, became aware that many such morbid symptoms, including rigidity of the os and laceration, were connected with previous chronic disease of the cervix or uterus. He had attended, during a long gynecological career, many hundred cases of laceration slight and severe, without once operating. He always found that, under the treatment of the inflammatory state which attended them, the ulcerated edges healed, the induration tissues softened, and a mere notch remained. He had never had irrestrainable hemorrhage from this cause in subsequent labors, or extension of the laceration to the body of the uterus. He thought the operation a totally unnecessary one, unless in some extreme exceptional case. He drew attention to the fact that one generation of surgeons divided the cervix deeply to cure all kinds of uterine disease, and that now another sews up accidental divisions to cure precisely the same diseases."

DR. PLAYFAIR (London) was satisfied that the operation was destined to occupy a very important place in the gynecology of the future. He regretted that it had hitherto received so little consideration at the hands of British obstetricians. The fact that such men as Emmet, Thomas, Pallen, Sims and Goodell had performed it as the result of their deliberate conviction that laceration of the cervix gave rise to serious uterine trouble spoke strongly in its favor. He observed that Dr. Bennet said one generation of surgeons was occupied in dividing the cervix, while another sewed up accidental divisions to cure precisely the same disease. He had himself performed the operation with success. He said there were certain cases in which the operation was eminently needful, and he claimed for it the serious and unprejudiced study which he was sorry to say it had not yet received in this country.

DR. GOODELL (Philadelphia) was sorry to disagree with Dr. Bennet, who had been the pioneer in gynecology. But he was wholly wrong in his deductions. He had operated one hundred and seven times without a death, and in the great majority of cases with such beneficial results that he could not but believe in the efficacy of the operation. He admitted that it was not necessary to operate in every given case of cervical laceration. When there was no eversion the operation was unnecessary. But ectropion could not be cured by local application. He believed cancer of the cervix started from the constantly raw and irritated surface of a cervical rent. Acting upon this knowledge he had frequently operated on a lacerated cervix when no constitutional symptoms were present, simply because cancer was hereditary in the patient's family.

DR. PALLEN regretted to say that Dr. Bennet was wrong, radically wrong in saying that inflammations and ulcerations precede rather than ensue from lacerations of the neck of the womb. He has confounded the split cervix, having ragged edges covered with cicatricial and papillary hypertrophic tissue, with the "ulcerated patulous os." He himself was the first to recommend and perform the *primary* operation. It was a good rule, almost an axiom of surgery to repair any solution of continuity. Why should the cervix uteri be exempt from this rule?

DR. HENRY BENNET (Nice) in reply said he thanked his medical brethren warmly for the flattering terms in which they had spoken of his labors. No man could be more anxious than himself to see science in general, and gynecology in particular, progress. He was ever ready to accept new doctrines and new views if founded on facts and not on blind enthusiasm. He was ever desirous to give to other innovators, now he was getting old, the sanction he had so long demanded in his youth. But he could not stand by and see extreme surgical doctrines promulgated with authority without making a protest founded on a lifetime of clinical experience.

DR. J. BRAXTON HICKS (London) made

FURTHER REMARKS ON THE USE OF THE INTERMITTENT CONTRACTIONS OF THE PREGNANT UTERUS AS A MEANS OF DIAGNOSIS.

The author recalled attention to his paper published in the London *Obstetrical Transactions*, 1871, Vol. 13, p. 216, in which, after showing that the uterus contracted usually at intervals of from five to twenty minutes, during the whole of pregnancy, and that these contractions were readily recognizable by the hand, he proceeded to point out the value of this knowledge as a means of diagnosis. In the present paper he was anxious to emphasize this, and gave cases where these contractions occurring (and the author has also lately pointed out that they are indicated by the gastrograph), the diagnosis was set at rest. (1) In suspected extrauterine pregnancy. (2) In hydramnios, where ovarian cyst was supposed to exist, and paracentesis abdominis performed through the uterine wall. (3) In cases of pregnancy where tumor was supposed to co-exist. (4) In hydramnios with twin conception, etc.

DR. MATTHEWS DUNCAN pointed out that the value of this sign as a diagnostic one was diminished by the fact that soft fibromas contracted quite as markedly as the gravid uterus.

PROF. HENNIG (Leipzig) said the diagnosis was still more difficult when both fibroma and pregnancy were present together.

In the absence of PROF. WILLIAM FREUND (Strassburg) the following abstract of his

ADDRESS ON TOTAL EXTIRPATION OF THE UTERUS

was read:

"My experiences of three years, which have elapsed since my first publication on total extirpation of the uterus, and the works of others on the same subject which have appeared within this interval, have rendered my judgment clear as regards the most weighty points in this question.

There can be no doubt that in carcinomatous disease of the uterus, which extends over a considerable portion of the organ, total extirpation is the operation indicated. A long time ago surgeons repeatedly recurred to this operation, and tried both the methods which are being undertaken at the present day, namely the operation through the vagina, and that through incision of the abdominal walls. The results of these attempts were so unfortunate that for a long time none further were made.

When I had put my method to the test with a favorable result in the first case, and when the first cases operated upon by Dr.

Martini at Breslau, Dr. Kocks at Bonn, Prof. Olshausen at Halle, Prof. Schröder at Berlin, Dr. Veit at Berlin, Prof. Spiegelberg at Breslau, Dr. Kuhn at St. Gallen, had likewise proved successful, the hope, and even a somewhat excessive confidence, that I had at last safely solved this great problem of surgery, was intelligible and justified. But when unfavorable results were frightfully multiplied, when also the mournful fact became clear that recurrences do happen after successful operations, then discouragement and opposition appeared on many sides, and this feeling now limits the operation almost as much as the first successes had raised excessive expectations.

In fact, considering the results, which, as regards recovery from the operation, were more unfavorable and as regards radical cure were not more favorable than those of amputation of the diseased portio vaginalis and of supra-vaginal amputation of the diseased corpus uteri, we should be no longer justified in undertaking total extirpation, if this operation, which is at all events justly indicated, could not be carried out with greater safety to life than hitherto. This greater safety, according to most recent experience, is secured by the vaginal total extirpation, carried out according to the principles of Czerny, Billroth, Schröder, Martin, and the abdominal total extirpation modified, according to the directions of Bardenheuer, Breisky, Rydygier, Kolaczeck, M. B. Freund. The leaving open and drainage of the peritoneal cavity, the simple ligaturing of the vessels of the severed broad ligaments step by step, make the operation shorter, less laborious, and hasten the healing. I have convinced myself by experiment upon the dead body that, after separation of the cervix uteri from the vault of the vagina, it is easy to draw up the uterus through the abdominal wound above the symphysis.

Lydygier and I have carried out upon the living subject this mode of operating, first recommended by Breisky, and I can strongly praise it. If we draw the uterus up by the tenaculum-forceps invented by me, we at once render the uterus comparatively bloodless. The detachment of the cervix all round through the vagina, I have carried out without chloroforming the patient immediately before the actual operation.

The results of the vaginal total extirpation as regards recovery from the operation appear to be very good, and, likewise, Kolaczeck is able to confirm that in the method of *abdominal* total extirpation as practised by him and Martini, a fatal result is exceptional. The object of this operation, which I have stated as the one to be sought for, would thus seem to have been obtained, viz., *that the operation may be undertaken as a not very dangerous one in the early stages of carcinoma and sarcoma, in which it gives a promise of radical cure.* Whether the vaginal or the abdominal extirpation is to be performed, must be decided according to the individual case. If the uterus is very large, and the vagina very narrow, the abdominal total extirpation must always be undertaken. With a small uterus and capacious vagina, the vaginal operation is to be preferred. But we must always keep before our eyes a point which Kolaczeck also notices, namely, that the abdominal operation has a great advantage in facilitating and insuring the carrying out of the separation of the uterus through sound tissue.[1]

My original method of total extirpation is to be considered as a stage in the development of this operation, which stage was then in perfect accordance with the demands of Hegar-Kaltenbach, namely the avoidance of bleeding and leaving open the peritoneal cavity. Indeed, this stage now is overcome, since a more advanced knowledge has shown that the danger of bleeding is not so great, and the danger of the peritoneal aperture is no longer to be considered, indeed that the keeping open of the peritoneal wound is highly desirable. I regard it as a great advantage of our time that such advances in knowledge and art are so rapidly accomplished, and I am rejoiced to have given an impulse to this advance."

Dr. Beverley Cole agreed with Dr. Freund that some cases could be better operated on through the abdomen, whilst others were more conveniently reached through the vagina. He related two cases, one by himself, the other by a friend (Dr. Lane, of San Francisco).

Dr. Wynn Williams had never removed cancer of the uterus by the knife. In treating epithelioma where there was a large growth from the neck of the uterus, he removed it by means of the écraseur and the scooping away any parts that could be removed in this way. Should there be much hemorrhage, it was arrested by the application of the actual cautery. He then packed the parts together within and around the uterus with cotton-wool saturated with a solution of bromine, one part of bromine to three of spirit of wine. The surrounding parts must be protected by cotton-wool saturated with a solution of carbonate of soda. Bromine causes a much larger destruction of the diseased structures than any other escharotic.

Mr. Spencer Wells said that he had never removed the entire uterus affected with cancer, because he had never seen a case where so serious an operation appeared justifiable, and where also the disease had not extended into the surrounding tissues to such an extent as to render the operation, if not fatal, of no permanent benefit. In cases where diseased structure could be scraped or cut away, and bromine, chloride of zinc, or the actual cautery applied to the raw surface, he had seen bleeding and offensive discharge stopped, to the great comfort of the women; many months, and in a few cases years had passed before there was any return of the disease. In two cases, patients had died, after five or six years, of some other disease without any return of the uterine growth. If the entire uterus were removed through the vagina, in a case where the surrounding structures were healthy, bleeding might probably be arrested in a simpler way than by the series of ligatures described by Dr. Martin. A number of pressure forceps might be so applied, before dividing the tissues, closely around the neck and body of the uterus, or directly after division, and the forceps left hanging out of the vagina until all fear of bleeding is over, and they might also be used to keep together the opposite sides of the divided vagina.

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[1] *Note of the 7th of July.*—On the 5th of July I extirpated the uterus by the *abdominal* method, in spite of the uterus being of small size and the vagina sufficiently large, in order to remove several much enlarged intra-abdominal (iliac) glands, presumed to be carcinomatous (as microscopic inquiry after removal confirmed). Extirpation of these glands has not yet been—so far as I know—undertaken and proved to be not at all difficult. The further course of this case shall be made known in time.

PROF. A. R. SIMPSON thought that, in the absence of Prof. Freund, who was prevented by family circumstances from being present at the meeting, the section should express thanks for the communication he had sent and their appreciation of the admirable services he had rendered in advancing the surgical treatment of the cancerous uterus. Nine years ago he heard one of the fathers of gynecology say that it was only youthful enthusiasm or inexperience that would attack a cancerous uterus. Throughout the debate to-day there was no man who said that no operation should be done.

DR. MARTIN (Berlin) said that only a very few cases of cancer of the uterus could be subjected to the radical extirpation, because any cancerous infection of the broad ligaments, or even of the lymphatic vessels therein, renders all these efforts useless. He had performed Freund's operation six times. The results in all the cases were fatal.

DR. HENNIG (Leipzig) said that in the year 1875, before Profs. Czerny and Billroth recommended the vaginal method, he had shown a uterus which he had extirpated by Sauter's method. In this case the uterus was so fixed by exudation at the fundus that it could not be dragged down. Freund's mode of extirpation seemed to him fit for less cases than the vaginal one.

PROF. G. EUSTACHE (Lille, Belgium) read a paper on the

PARALLEL BETWEEN EMBRYOTOMY AND THE CESAREAN SECTION.

"Considering, on the one hand (1), the recent results of ovariotomy, and of all other abdominal sections; (2) the improvement in the prognosis of all surgical inquiries under antiseptic treatment; (3) the success of Porro's operation; (4) the immensely favorable results both to mother and child after the Cesarean section, which have been published during recent years.

And considering, on the other hand, that embryotomy, while it always sacrifices the child, exposes the mother to as grave dangers as the Cesarean section; that it is inapplicable in many cases of deformed pelvis, *e. g.*, when the conjugate is five centimetres and under.

He concluded—

1.—When the child is living at the beginning of labor, and when the pelvic strait is under 78 mm.—the extreme limit for the application of the forceps—the Cesarean operation should be performed early, that is to say, as soon as labor has really set in, and with antiseptic precautions.

2.—When the child is dead and the superior strait measures five centimetres, recourse should be had to embryotomy. Below five centimetres the Cesarean section becomes an operation of necessity.

To sum up, the Cesarean system should be the method of election, embryotomy that of exception."

DR. MEYER (Copenhagen) denied that the death-rate of embryotomy was fifty per cent. Porro's operation had a death-rate of fifty per cent. If Dr. Eustache had saved the two women upon whom he had performed the Cesarean section, he could only congratulate him upon his rare success.

PROF. AMANN (Munich) being absent, sent the following abstract

ON THE LOCAL TREATMENT OF CHRONIC METRITIS.

"Most cases of chronic metritis require local treatment for their cure. If the disease be limited to the mucous membrane of the cervical canal, the treatment is comparatively simple, and cure can be effected by various harmless means. Greater difficulty is met with when chronic inflammation of the body or of the body and neck of the uterus calls for local treatment. For many years I have carefully tested the various means recommended during the last twenty years in the treatment of the affection in question, in hospital and private practice, in more than three thousand cases, and have come to the conviction that only one method acts with certainty without being troublesome and *dangerous*. This is new only in the manner of its execution, and consists in the systematic cauterization of the cavity of the body, and eventually of the cervix of the uterus, by means of an instrument like a sound, into a hollow in the upper end of which is fused *lapis mitigatus* (argenti nitras, weakened by the addition of nitrate of potash). This can be employed, as is self-evident, according to the behavior of the endometrium, and the resisting power of the uterus in individual cases, at one time more frequently and thoroughly, at another more rarely and cautiously and will have, according to the peculiarities of the special case, by itself alone, or in conjunction with other means (topical blood-letting, scraping off of growths of the endometrium), almost sure results. Only in a few cases of large tumors or severe bleeding granulations of the endometrium is the employment of the galvano-cautery or thermo-cautery necessary. The intrauterine application of lapis mitigatus is, with the necessary caution, absolutely free from danger, and in a small number of cases only does it cause pain, which, however, is usually of short duration; sometimes, also, it gives rise to considerable but transient bleeding. Once only have I noticed, after a severe cauterization of the whole of the uterine cavity, dangerous metritis or peri-metritis, which, however, ended in a few weeks in complete recovery. Even slighter degrees of acute endometritis and acute metritis occur, according to my experience, in barely 2 per cent of all the cases.

One of the chief advantages of the proceeding in question is, that it can be carried out without assistance in at least 95 per cent of cases, and usually in five, exceptionally in ten, minutes. Within this time, moreover, the cleansing of the uterine canal from mucus, a necessary preparation for cauterization, as well as the dilatation of the narrow canal, by means of metallic dilators, can be accomplished. Further, this procedure is applicable when the condition is complicated by severe flexions and versions, either after straightening the organ immediately before cauterization, or, if the canal be of normal width, by cauterizing with the sound-like instrument forthwith. This is done without a speculum, just as a sound is introduced. By reason of the rapidity of the cauterization, which is finished in three to five seconds, and because, by the revolving of the caustic-holder, contact of the caustic with the individual parts of the endometrium is extraordinarily short, coating of the caustic with coagulated albumen is prevented. Immediately after cauterizing, a large tampon of wadding, soaked in a solution of tannin, should be introduced into the vagina, in order to prevent the caustic dissolved in the uterine cavity from escaping into and through the vagina."

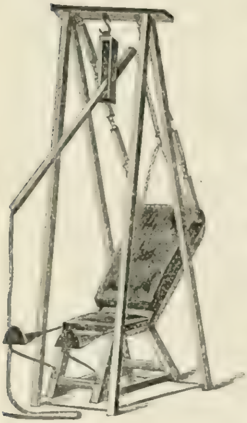
Dr. E. Verrier (Paris) presented his views on the

IMPROVEMENT IN THE CONSTRUCTION AND APPLICATION OF UTERINE REPOSITORS.

"After referring to the works of English, German, and American authors who have recommended various postures for redressing displacements of the unimpregnated uterus, Dr. Verrier examined the advantages of an apparatus by means of which the physician can not only give the patient the position desired, but also restore her to the upright without the least shock to her, or the least effort on her part, or on that of the operator.

Having explained the means whereby the uterus is suspended in the pelvis, he pointed out the use of his apparatus for restoring the displaced organ.

It may be stated generally that every displacement yields to this manipulation and position, except, indeed, in cases in which the uterus is pathologically adherent to the neighboring organs.


Dr. Verrier's apparatus for the treatment of uterine displacements.

At the same time it is admitted that the restored position is not maintained in flexions of the uterus without an intrauterine stem.

The conditions in which the apparatus of Dr. Verrier is suitable are :—Anteversion, retroversion, and prolapsus. In the construction of the apparatus, he at once employed some slips with springs and one or two cushions. Since then he has constructed an apparatus which is fixed to the ceiling of a room with springs. Finally, he has had constructed a movable apparatus, shown in the accompanying cut."

DR. A. LEBLOND (Paris) read a paper on

AMPUTATION OF THE CERVIX UTERI FOR AREOLAR HYPERPLASIA.

"In his paper the author did not intend to discuss this affection and its treatment in all its phases; he merely desired to point out that there are cases in which the disease, after having resisted all the measures ordinarily employed, may be cured by shortening the cervix uteri. He briefly referred to the anatomical lesions found in the first stage of areolar hyperplasia, which is termed by authors the 'stage of softening or infiltration.' At this period, when the cervix is enlarged and covered with ulcerations, bleeding at the slightest touch, and persisting for months, the operation is chiefly applicable. The amputation, as the author has had opportunity to observe, produces the shrinking of the uterine tissue by the formation of connective-tissue fibres, and the wound once cicatrized, the cervix presents the slender and short appearance of that of a nullipara. In color only does it differ, being of a darker red.

As areolar hyperplasia never endangers the life of the patient, it is essential that the operation for its relief should be entirely devoid of danger. Basing on the experience of Dr. Byrne, of Brooklyn, who has amputated the cervix with the galvano-caustic wire over one hundred times without serious consequences, Dr. Leblond proposes this method, without drawing down the uterus. This is readily feasible through Gemrig's (bivalve) speculum, the wire loop being easily carried up to the desired point, and the cervix removed in full sight of the operator."

DR. R. BEVERLEY COLE (San Francisco) made a series of remarks on various topics:

I. ON THE MECHANICAL TREATMENT OF SOME OF THE DISPLACEMENTS AND DISEASES OF THE UTERUS.

The purpose of the speaker was rather to introduce to the profession a series of original or improved instruments, the result of careful study and long experience, than to discuss the indications or principles involved in their employment.

These latter have been dealt with very exhaustively by most authorities, and if entered upon here would require much more time than has been allotted by the committee to the reading of any individual paper, and would not be as profitable as though developed in the discussion which may follow.

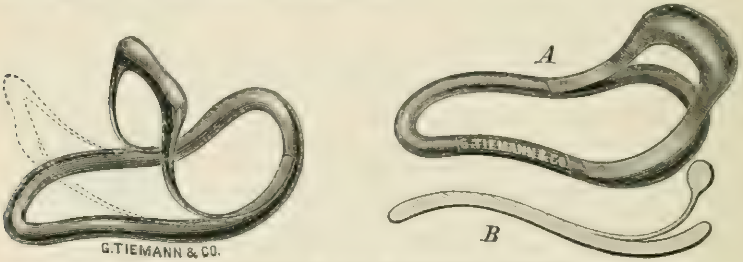
1st. These diseases were considered with reference to their mechanical treatment *only*—whether complete or auxiliary.

2d. Brief outline of pessaries with special reference to those of Hodge, Simpson, Smith, Sims, and Thomas.

3d. Displacements of the uterus, like dislocations of the bones of joints, give rise to irritation and inflammation, also to neuroses, which in many instances, through reflex action, are referred to other and remote organs.

In such cases as are attended by or result in inflammation, the use of all pessaries extant are, in consequence of excessive sensibility of the organ, contra-indicated.

With a view to meeting the indications and exigencies of these cases, the author has devised an imperishable spring pessary adapted to the most irritable and sensitive cases, whether of retroversion or anteversion and their flexions. These instruments, made of vulcanite or celluloid, consist of a Hodge or Smith pessary as a bed, to the side bars of which is attached a watch-spring; in the anteversion running forward, whilst in the retroversion instrument running backward, and in either case supporting a thick vulcanite bar, which rests (in the anteversion instrument) behind the symphysis pubis, and exerts its elevating power through the anterior wall of the vagina and the bladder; whilst the bar of the retroversion pessary rests in the fourchette of the vagina and uterus, so as to elevate and support the fundus of the organ through the cul-de-sac of Douglas.



Cole's Anteversion and Retroversion Pessaries.

II.—Description of *double curvature* of the cervix uteri, resulting from atony of the organ and its annexæ, believed never before to have been fully described.

Treatment of same consisting of introduction of bougies and use of stem pessaries, the best of which is the galvanic stem.

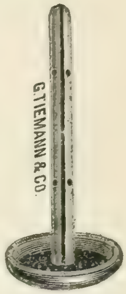
III.—Super-involution of the uterus following parturition—its etiology, symptoms, viz., cachexia, suspension of the function of menstruation and barrenness. Its treatment (mechanical), the employment of graduated galvanic stem or intrauterine pessaries.

IV.—Description of the author's galvanic stem pessary, which consists of two half-round staves, one of zinc, the other of copper, running longitudinally and separated by the interposition of a thin layer of vulcanite, the whole riveted together with vulcanite pins and the staff fixed at its lower extremity into a disc of vulcanite, which latter rests on the posterior wall of the vagina and affords support to the staff which is to be carried through the cervical canal and cavity of the uterus to within one-fourth of an inch of the fundus. The instrument in the treatment of *super-involution* should be increased in length from time to time as the development of the organ progresses, whilst in the treatment of *double curvature* but one size will be required, and it ought not to exceed two and a quarter inches in length.

V.—The time required to accomplish a cure of sub-involution is rarely more than three months, when, as a rule, the menstrual function will be re-established and frequently pregnancy follows.

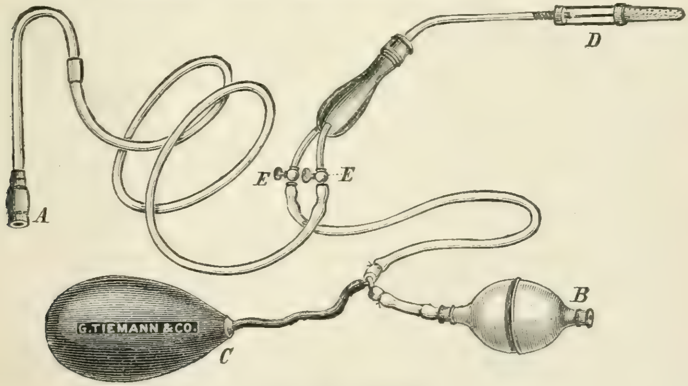
VI.—Treatment (local) of ulcer, granular degeneration of the endometrium, fungous growths and cancer of the uterus, in which menorrhagia or metrorrhagia is the urgent symptom and the use of the *cautery* indicated.

Pacquelin's thermo-cautère, considered a moderately good instrument when it can be used, but it rarely works when needed; its heat is too great for many cases, causing hemorrhage instead of arresting it. The common iron cautery is too troublesome to manage and always loses its heat before it can be satisfactorily applied.



Cole's Galvanic Stem Pessary.

The gas-cautery of Thomas and others is uncontrollable in its application, as the flame has to be brought to bear on the diseased parts and is liable to spread beyond the limits desired, and it has to be used through a water-jacket speculum.



Cole's Gas Cautery.

The author's *gas cautery* now given to the profession for the first time, overcomes all the difficulties attendant on others.

It consists of an air reservoir, gas attachment, which can be adjusted like a drop-light to any ordinary gas burner, a handle through which the gas and air are admitted and regulated in quantity by a stop-cock on each tube at the handle, and finally of a platinum or fire point, of which there may be several sizes and shapes, so as to adapt it to not only uterine cases, but also to abdominal surgery and surgery generally.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY.

(ABSTRACT.)

SIXTH ANNUAL MEETING.

HELD IN NEW YORK, SEPTEMBER 21ST, 22D, AND 23D, 1881.

First Day—Morning Session.

The Society met at the Library Hall of the New York Academy of Medicine, on Wednesday, September 21st, and was called to order at 10 A.M., by the First Vice-President, DR. THADDEUS A. REAMY, of Cincinnati.

The Vice-President announced that the Secretary had received a communication from DR. WM. H. BYFORD, of Chicago, the President, stating that on account of sickness he would not be able to attend the present annual meeting.

THE ADDRESS OF WELCOME,

given by FORDYCE BARKER, M.D., LL.D., President of the New York Academy of Medicine, was as follows :—

Fellows of the American Gynecological Society:—Five years ago, an inaugural meeting was held in this hall for the purpose of organizing this Society. In the language of the Secretary, it was a nucleus around which the gynecologists of this country could cluster. It was a surprise to me to see such a number of representative men come together from other and distant cities at such cost and sacrifice of time, in their zeal and interest in that department of science and art to which they had devoted their lives. The Society was organized by the adoption of a constitution and by-laws and election of officers. Three months after its organization, the first meeting for scientific work was also held in this hall—a session of three days. Since then the Society has held annual sessions of three days in Boston, Philadelphia, Baltimore, and Cincinnati. The profession in this and the other cities have stimulated and encouraged the Society in its work by a large attendance and genial hospitality. The honorary guests invited by the vote of the Society have added to the importance and interest of its discussions. The fruits of its labors are seen in the five volumes on the table before us. It would not be becoming in one of its associates to boast of the value and importance of the contributions of the Society to this department of our profession, but I do think that I am justified in saying that we have great reason to be cheered and inspirited by the past to continue in well-doing, by zealous, honest, able work, so that all who aim for high reputation in obstetrics and gynecology will seek to obtain membership, as giving the seal and stamp of eminence.

At the recent wonderful gathering of the profession in London, it was most gratifying to note how generally, how frankly, and how cordially the pre-eminence of American gynecologists was conceded by the most distinguished men from all the European nationalities represented at the International Congress, notwithstanding the differences of opinion in regard to many special subjects.

I cannot forbear an allusion to one great feature of the work which has been accomplished through the instrumentality of this Society, with the co-operation of one of our Honorary Fellows, Dr. John S. Billings, U. S. A., in charge of the National Medical Library in Washington. In the last four volumes of the Transactions of the Society appears a complete Index of Obstetrical and Gynecological Literature, from July, 1876, to January, 1880. Every Fellow of this Society, every purchaser of these volumes can now know where to find without trouble all the literature pertaining to these topics. I think no one in this Society will consider that I go too far in saying that every writer on these subjects, and, indeed, that every conscientious practitioner who wishes to do justice to those who commit themselves with confidence to his professional charge for treatment of affections which belong to this part of our profession, has no excuse for ignorance of what now is common stock of its literature.

I esteem it as a high honor, as well as a great pleasure now, in behalf of the New York Academy of Medicine, to welcome the American Gynecological Society at its sixth annual meeting to this hall. The presence of such members to greet you at its opening warrants me also in welcoming you in behalf of the whole profession of this city, and in expressing the hope that its three days' session may be memorable in the future, not only as a refreshing season, but as an era in its history, from its contributions and additions to our science and our art.

As our Society bears a national name, I may be pardoned for an allusion to one striking contrast as regards the associations which surround us, and must, in a degree, affect us all at the present time, as compared with those at our first gathering in this hall. Then the country was celebrating the first centennial of its existence as a nation. Now the whole country—North, South, East, and West equally—is clouded by a national sorrow which annihilates the bitterness of party feeling and unites all in a common bond of sympathy and mourning. On two occasions before the country has felt the shock which must follow the death of its President from disease. Another fell by the hands of an insane fanatic at the close of a fearful struggle between different sections of the country, and his death was lamented as a great public calamity by both parties in the contest which had just terminated. But no one ever could have anticipated the possibility that one chosen by the suffrages of a free and reunited people, bound together more closely than ever by the ties of common interest and sympathy, could be in danger of his life from an assassin. If the presence of such events casts a deep shadow of sadness over our festive reunions, it should not diminish our zeal for work in the noble aims to which the Society is devoted.

ACUTE HYPERESTHESIA OF THE PERITONEUM, EITHER CIRCUMSCRIBED OR DIFFUSED, FOLLOWING MINOR GYNECOLOGICAL OPERATIONS AND MANIPULATIONS.

DR. SAMUEL C. BUSEY, of Washington, D. C., reported one instance which represented the type of a class of cases occasionally occurring in females, of which the predominant clinical feature is pain and tenderness diffused over the entire area of the abdomen, unaccompanied with the other usual symptoms of inflammation.

Mrs. —— had, during a series of years, suffered at varying intervals with dysmenorrhea, due mainly to anteflexion of the womb. A week previous to the expected period in January, 1881, a very small laminaria-tent had been introduced and permitted to remain until expansion was complete. The following period was painless. The February period was passed without the preparatory dilatation, and her suffering was quite as intense as at any time before. On Thursday, March 9th, one week previous to the expected menstruation, he introduced without difficulty a laminaria-tent about the size of an ordinary metallic knitting-needle. Soon after leaving the house the pain began and rapidly increased in intensity, reaching in about forty minutes, when the tent was withdrawn by her husband, a degree of agony never before experienced. The pain began in the womb and was speedily diffused over the entire area of the abdomen. The sensitiveness was so acute that the weight of the bed clothing could not be borne. Every jar of the bedstead or of the floor of the apartment increased her suffering. Coldness of the extremities, pallor of the face, nausea and vomiting, and vesical irritability took place apparently simultaneously with the hyperesthetic phenomena. A twenty-drop dose of chlorodyne was given and was repeated, and when Dr. Busey arrived he ordered fomentations to the abdomen, continuance of the chlorodyne as might be necessary, rest, and a bland diet. The next day she was quite relieved, a slight feeling of soreness in the middle epigastrium only remaining. She continued to improve, and on Sunday afternoon the flow began painlessly. This period was freer from suffering than any during the previous six months, excepting the one in January. Tympanites and fever were absent. What is the pathological condition? The absence of fever, tympanites, and effusion exclude inflammation.

If inflammation is excluded, would not the freedom from fever, rapid subsidence of symptoms and absence of consequent conditions, bar the hypothesis of simple inflammatory hyperemia? The theory of inflammation is, however, unsatisfactory, and in the above case would prove too much, inasmuch as it would attribute the cure to the efficacy of a moderate and evanescent narcotic, and pretermit the more logical conclusion, that the speedy relief was due to the prompt removal of the cause. If the withdrawal of the tent was, in fact, the remedy, then the assemblage of symptoms was manifestly a neurosis, finding its explanation in the excessive sensibility of the peripheric endings of the sympathetic nerves supplying the part irritated, and in the morbidly heightened excitability of the receptive nerve-centres, which was so great as to produce reflexly the gastric, cardiac, and vaso-motor disturbances.

The tent was the exciting cause, and the focus of irritation was located along the cervico-uterine canal. Upon this hypothesis all the symptoms may be explained.

The condition described exhibits a marked resemblance to that assemblage of nervous perturbations recognized as shock, or, perhaps, the lesser disturbance of the nervous equilibrium known as collapse; but the suddenness and acuteness of pain, though not absolutely conclusive, ought to preclude such interpretation of the phenomena, unless it can be shown that a transitory first stage is quickly succeeded by reaction, marked by the initial symptom of pain.

The clinical picture presented represents, probably, an observation of unusual intensity; but the gradations of suffering, varying from an aggravated to milder forms, sometimes barely sufficiently marked to attract attention, constantly threaten our confidence in the harmlessness of minor gynecological operations and manipulations, and for the time being disturb the equanimity and self-reliance of the most astute diagnostician.

The paper was discussed by **Dr. Jas. D. Trask**, of Astoria, N. Y., who regarded the term "acute hyperesthesia" as a much better one than "neuralgia of the peritoneum," etc. While such cases might arise from local causes, they might also be produced by blood-poisoning, and he cited a case in which the condition depended evidently upon the poisonous influence of sewer gas.

Dr. Reeve, of Dayton, O., accepted Dr. Busey's term, but his experience led him to the conclusion that such cases were not of such infrequent occurrence as one might infer from the paper. One cause to which he directed attention was the use of vaginal syringes in which the terminal opening in the tube was allowed to remain open. He regarded the condition as a neurosis, and yet, as the first link in the chain of events, that unarrested would lead to inflammation.

Dr. H. F. Campbell, of Augusta, Ga., had had such cases, and some time ago he gave them the name "peritoneal tenderness." He regarded it as the initiatory stage of inflammation which usually promptly yielded to opium and quinine.

Dr. Van De Warker, of Syracuse, N. Y., ventured a protest against the term used by Dr. Busey, because he believed that when a new term was adopted, it should be one that clearly defined a pathological condition.

Dr. Engelmann, of St. Louis, and also Dr. T. A. Emmet, of New York, thought that the term was one calculated to mislead.

The paper was further discussed by Dr. I. E. Taylor, E. Noeggerath, and J. Marion Sims, of New York.

Dr. H. J. Garrigues, of New York, then read a paper entitled

EXPLORATORY PUNCTURE OF THE ABDOMEN.

The author had examined the fluid of a large number of ovarian cysts and compared it with that found in other abdominal tumors and with fluid from collections in other parts of the body.

Myxoid proliferous cystoma, being by far the most common variety of ovarian cysts, was discussed in detail. As a rule the physical characters are so marked that the fluid can be recognized by its mere appearance. The most important physical character is the viscidity, but it may be absent in ovarian cysts and found in other cysts.

Ovarian fluid does not contain any characteristic chemical element. The coagulability has a certain diagnostic value. As a rule, ovarian fluid does not coagulate spontaneously, and when, in very rare cases, it does, the coagulation takes place slowly, not instantaneously as in some uterine fibro-cysts. Ascitic fluid, as a rule, shows some degree of spontaneous coagulation. By heat ovarian fluid, as a rule, coagulates to a great extent or entirely. The test claimed as characteristic for ovarian cysts, that the coagulum is redissolved in boiling acetic acid, is utterly unreliable.

Of much greater importance is the microscopical examination. It is only by studying the cyst-wall that the nature of the formed elements found in cyst fluid can be understood. The most important elements are columnar epithelial cells seen in side-view. The corpuscles, known as Drysdale's granular ovarian cells, are merely nuclei in fatty degeneration, and have no diagnostic value. The author has been able to follow their origin from the time when they are yet imbedded in the epithelial cells on the inside of the cyst.

The spindle-shaped cells, smooth muscle fibres, which have been claimed to be pathognomonic of fibro-cysts, has the author found in the fluid of an ovarian cyst. There is no pathognomonic morphological element in ovarian cyst fluid, but in the great majority of cases ovarian fluid can be distinguished from all others by the mere examination of the fluid, and combined with the data gained by the history and physical examination of the patient, the examination of the fluid is of paramount diagnostic value.

Next he spoke briefly of dermoid ovarian cysts, which often contain the same kind of fluid as the myxoid variety.

He had found a fluid as clear as water, not only in cysts of the broad ligament, but in hydrops of a single Graafian follicle (true monocyst) and in an ovarian cyst composed of several compartments.

He had not found the fluid from sarcomatous and carcinomatous cysts differ from the more benign varieties.

There was no means of distinguishing a cyst of the broad ligament from that of the nature of the ovary by the contents.

An instantaneous and complete coagulability is characteristic of uterine fibrocyst, but has only been found in a minority of cases. Columnar epithelial cells have never been found in uterine fibrocysts. In some cases the differential diagnosis can be based on the fluid alone, and in most some information can be obtained in this way which will contribute to clear up the diagnosis.

The advantages to be gained by examination of the fluid are so great that it ought to be undertaken in every case before operation. By using a fine canula and aspirator, and pushing the trocar in slowly, the danger of wounding vessels is exceedingly small. The real danger is to carry septic matter into the interior of the body, and that can be avoided by antiseptic precautions. The whole amount of fluid found in the cavity opened ought to be withdrawn in order to avoid the pouring out of the remainder into the peritoneal cavity. After the operation the patient ought to stay four days in bed, in order to further guard her against peritonitis.

Dr. T. M. Drysdale, of Philadelphia, differed with the author of the paper entirely in the conclusions which had been reached, and still adheres to the pathognomonic value of the "ovarian cell," or perhaps better the "ovarian corpuscle." He promised the society a paper on the subject at its next annual meeting, in which he would review the many points made by Dr. Garrigues.

Dr. Leopold Meyer, of Copenhagen, a member by invitation, was of the opinion that tapping is not so frequently resorted to as Dr. Garrigues seemed to think it should be. He thought it possible, in the vast majority of cases, to make a correct diagnosis without tapping, and he had seen several cases in which tapping would have been positively dangerous. He believed that the cases in which tapping was necessary to diagnosis were infrequent.

Dr. H. P. C. Wilson, of Baltimore, thought if there was grave doubt concerning diagnosis, the recommendations made by Dr. Garrigues might be available; but he felt sure that in all cases where tapping had preceded the operation of ovariotomy the chances of success had been diminished.

Dr. T. A. Emmet, of New York, remarked that in his experience it had been the exception not to have trouble follow tapping. In a large number of cases inflammation of the sac had occurred which complicated the subsequent operation. It should be done only as an exception to the rule.

Dr. Barker, of New York, referred to a case which illustrated the danger from hemorrhage due to puncture of blood-vessels in the operation of tapping. At the autopsy it was found that a mesenteric vein had been opened and the peritoneal cavity was filled with blood.

Dr. Dunlap, of Springfield, O., thought that as a rule tapping removed a very important aid in making a correct diagnosis. Sometimes we have to deal with a simple single large cyst, and the appearance is very much that presented by ascites. To tap in such cases is improper, because we have no means left of distinguishing the thin walls of the cyst from the walls of the abdomen.

There are some cases in which the intestines are held in unusual positions by adhesions, and in such cases he would have no hesitation in tapping. He had not had bad results follow tapping except in one case. In rare cases tapping might be necessary in order to complete the diagnosis by microscopical examination.

Dr. Campbell, of Augusta, Ga., suggested that Dr. Garrigues referred to exploratory puncture or tapping for purposes of diagnosis; the operation being done with a small needle, and special precautions being taken that the operation do no injury. The discussion, however, had drifted into the consideration of the question of tapping with large instruments for the relief of symptoms, etc.

Dr. Emmet reminded Dr. Campbell that death had occurred after the use of the hypodermic needle for purposes of diagnosis, and he had seen inflammation of the sac follow the withdrawal of not more than half a drachm of fluid.

Dr. Kimball, of Lowell, said that his rule was to avoid tapping if possible; yet he could recall only a single case in which bad results had followed the operation. In that case the patient died of septicemia due to escape of the contents of the sac into the peritoneal cavity. He had operated in many cases where tapping had been previously resorted to—in one case nineteen times—but had not found evidence of harm having been done by it, that is to say, peritoneal adhesions.

The discussion was continued by Drs. Reeve, of Ohio, and Taylor, of New York, and then made the special order for the afternoon session.

First Day—Afternoon Session.

The Society was called to order at 3 p.m. by Dr. Reamy, and the discussion on

EXPLORATORY PUNCTURE OF THE ABDOMEN

was renewed by Dr. G. J. Engelmann, of St. Louis, who has not regarded tapping an ovarian cyst as a trivial operation, although he had tapped both ovarian and cysts of the broad ligament without accident. As a means of diagnosis he regarded the operation as an important one, and one which might be necessary in certain cases; perhaps not so often, however, as one might be led to infer from Dr. Garrigues' paper. The exploratory puncture had, perhaps, more scientific interest than practical importance.

Dr. Howard, of Baltimore, thought that tapping should not be performed if it was possible to avoid the operation; and yet, there were cases in which, doubtless, the life of the patient had been saved by the procedure.

Dr. Drysdale, of Philadelphia, said that he had had large experience in tapping during the last thirty years in the practice of Dr. Atlee and his own, and he was unable to recall a single case in which a fatal result followed the operation.

Perhaps the method had something to do with the results, namely: Place the patient upon the back, in the semi-recumbent position, with the head and shoulders well supported, and with a sheet supporting the abdomen as the fluid flows away. He regarded it as a very dangerous procedure to tap and only partially evacuate the cyst.

Dr. Dunlap remarked that, while he regarded the operation of tapping as being of itself only slightly dangerous, he also believed that manipulation of the tumor for purposes of diagnosis immediately after tapping as a very dangerous procedure.

The paper was further discussed by Drs. Chadwick, of Boston, Noeggerath, of New York, and closed by Dr. Garrigues.

The title of the next paper was

NOTES ON CASES OF PELVIC EFFUSION RESULTING IN ABSCESS,

by Dr. G. H. Lyman, of Boston. From 1875 to 1880, inclusive, one hundred and forty-six cases of pelvic effusion had been treated by himself and his colleagues in the Boston City Hospital. These cases were admitted at all stages of the disease, and of them there were forty-one which were already at the time of admission, or soon afterward became, cases of pelvic abscess. It was not the design of his paper to enter upon any elaborate discussion of the pathology of the disease. Numerous designations had been employed to express the various conditions resulting from inflammation of the serous and cellular tissues in which the pelvic organs were imbedded. The term perimetric inflammation proposed by Dr. Barnes seemed practically as good as any, with certain restrictions. He would say in general terms that the causes of pelvic abscess should be sought for in those diseased actions which led to its first stage. In those pathological conditions which induced peritonitis, cellulitis, hematocele, etc., in many of these cases not only had primary cellulitis, peritonitis, or hematocele evidently not been recognized, but on admission to the hospital there was well-developed fluctuation. No doubt there were cases well calculated to deceive the general practitioner; but in a large majority of the cases a proper vaginal examination, with the antecedent history, should lead to a correct diagnosis. The great frequency of pelvic effusion was not sufficiently insisted upon by gynecological writers. A comparatively large proportion of the cases terminated by absorption, and the physician not recognizing the local lesion comforted himself in the delusion of successful treatment of cystitis or dysentery. It should be recognized that neither pain, nor abdominal enlargement, nor menstrual irregularities were necessary factors of pelvic peritonitis, and that in the absence of one or all of them a distinctive suppurative process might be going on, to be revealed only after irreparable damage had been done. Encysted purulent deposits might remain for long periods quiescent and unsuspected, but as a rule pus in the tissues was always seeking an outlet. If it were not let out by the knife, aspirator, or otherwise, it would be likely to result in an unsafe outlet through the peritoneum, the groin, the thigh, the bladder, the rectum, one or more of them, or by chance the patient might be fortunate enough to get a vaginal opening. As to the history of pelvic effusions, the large majority of cases were not of puerperal origin. Interference with the menstrual function by fatigue, chills from cold bathing, or otherwise, excessive coition, the extension of gonorrheal secretions through the Fallopian tubes, operations upon the cervix, intrauterine applications, the sound, the pessary, were all more or less fruitful causes of peritoneal or cellular effusion. There was no doubt but what cancerous affections might be the cause, although he had met with but one such case, and that a doubtful one. Effusions were sometimes mistaken for something else; but the presence of the effusion being satisfactorily recognized, we might expect to find one of several conditions, all of which were to be considered in view of subsequent treatment. The mere presence of effusion was not of necessity an excuse for operative interference. In a large majority of the peritoneal and cellular forms the material was unquestionably absorbed. The discovery of a tumor caused by effusion did not, unless there were inflammatory symptoms threatening suppuration, necessarily demand local surgical interference; but if fluctuation were superadded, the question at once presented itself, should an effort be made to evacuate it? The answer depended upon the constitutional symptoms, the differentiation which we might be able to make between pus, serum, blood, etc. If the contents were serous, he believed delay preferable to haste, and by the use of iron internally and vesication and iodine externally, avoid the risks incident to the most careful puncture. The same was true with regard to hemorrhagic effusions. The danger of exciting suppuration in a large hematocele all would admit. Should it be found that the fluctuation were due to pus, to "make haste slowly" would mean an extension of the abscess, increasing exhaustion, and a larger mortality. Doubt in diagnosis could often be dissipated by the use of an aspirator, which, if thought best, might be as fine as a hypodermic needle. It was attended with very slight danger in view of the possible beneficial results. He never had occasion to regret inserting the trocar too early, but had had occasion to regret inserting it too late.

His object in bringing the paper before the Society was, to direct their attention more particularly to the following considerations:

1st. The necessity of a more general recognition by the profession at large of the fact that pelvic effusions were of extremely frequent occurrence, that very often they were not recognized through error in diagnosis, and especially from the fact that, when arising from pelvic peritonitis, they were commonly absorbed, leaving only a focus of induration.

2d. The extreme importance of recognizing in these effusions the earliest advent of suppuration, and in doubtful cases the propriety of a resort to the aspirator, as being the least of two evils.

3d. Suppuration being recognized, the importance of giving early exit to the pus per vaginam, if by any means this could be safely accomplished, before the danger was incurred of its extension to the surrounding tissues with long-continued and exhausting discharges, too often resulting fatally.

Dr. A. H. Smith, of Philadelphia, regarded the practical point, namely, early opening such abscesses per vaginam, as an exceedingly important one. If the effort to find pus through the vagina was done under proper antiseptic precautions, he thought the risk was trivial, while the dangers from suppuration and spread of pus were necessarily very great.

Dr. Ellwood Wilson, of Philadelphia, said that he had had only a limited number of cases of this character, but those which he had had, he had allowed to take their usual course without active treatment. He had not, at least, attempted to interfere surgically until after the abscess had been well developed.

Dr. Fordyce Barker, of New York, said, with regard to the propriety of early operative procedure, that his own rules had been long established, and it was to aspirate early, whether the exudate was serous or purulent. He had seen the aspect of the case changed entirely and in the most favorable manner by the introduction of a hypodermic needle and drawing off one or two drachms of serum. He knew of no single class of cases in which so little, apparently, physical change, produced so marked general improvement.

Dr. Paul F. Mundé, of New York, expressed his satisfaction at the remarks of Dr. Barker, as they completely confirmed his own observations as reported in a paper read before the New York Academy of Medicine a year ago. He referred to a number of cases of chronic pelvic exudation, in which he had introduced the aspirator needle merely on the suspicion that pus was present, and the withdrawal of a very small quantity, perhaps not more than half an ounce, had been followed promptly by an amelioration of symptoms and a rapid disappearance of the induration. The point was the diagnosis and treatment of these *chronic* exudations with *obscure* suppuration by the aspirator needle.

Dr. Van De Warker, of Syracuse, N. Y., believed that the spontaneous escape of pus through the bladder or the rectum was not a true opening, but that a pus cavity was left which never evacuated itself, and sooner or later it became necessary to cut down and thoroughly empty the sac before recovery could take place. He thought it was sometimes very important to open such abscesses late as well as early.

The discussion was continued by Dr. Emmet and closed by Dr. Lyman.

Thursday—Second Day—Morning Session.

The Society was called to order by Dr. Reamy at 9.30 A.M. The first paper was read by Dr. N. Bozeman, of New York, and entitled:

GENITAL RENOVATION, PARTICULARLY BY KOLPOSTENOTOMY AND KOLPOECPETASIS, IN URINARY AND FECAL FISTULES.

Dr. Bozeman proposed the term genital "anakainosis," meaning the opposite of genital "kleisis," for the operation practised by him (since 1855), by renewing and, as far as possible. restoring the vagina to its natural dimensions, and by closure of fistules successfully in the vulvo-vaginal and uterine tract without interference with its normal functions.

As an important part of genital "anakainosis" he performs "ephelkosis" (the process or act of pulling down) to make the uterus subservient to the closure of large defects in the vesico-vaginal or recto-vaginal septa. This operation he designates, "*hysteroephelkosis*." Horner, of Philadelphia, in 1838 first practised hysteroephelkosis, but with a disastrous result, and the umbrella-like instrument which he used he called "*ephelko mêtre*." In cases where there are defects, losses of substance in the female bladder, this organ, from disuse, remains folded up, contracted and distorted, and for this pathological condition, found to be present more or less in all cases of vesico-vaginal, or vesico-utero-vaginal, or urethro-utero-vesico-vaginal fistules, Dr. Bozeman proposes the name of "cystostellosis," to contract, to fold up. This word, cystostellosis, is used as a companion word to kolpostenosis, the cicatricial narrowing of the vagina; and, lastly, as a term designating the operative procedure of cutting into cicatricial bands, adhesions, contractions, tortuosities and abnormal narrowings of the vagina, the word "kolpostenotomy" is used, indicating a surgical procedure of cutting into a cicatricially narrowed and usually distorted vagina. Kolpoecpetasis, the opening up of the vagina by gradual dilatation with metallic or hard-rubber cylinders, or oiled-silk bags filled with bits of sponges, fulfils a most important indication, regarding the lost function of the bladder by temporarily stopping up the fistulous opening in the vagina and bladder in cases of vesico-vaginal fistules, and forcing the bladder, to some extent, to assume its function of retaining the urine for several hours, thus gradually regaining its normal shape, contractility, and dilatability. To this operation Dr. Bozeman gives the name "cystoecpetasis," analogous to the term proposed by him of "kolpoecpetasis" as applied to the vagina.

These terms, like other surgical terms in common use, simplify the study and the understanding of the rational, operative procedures for the cure of the loathsome defects of the female genito-urinary organs. These operations on the female genito-urinary tract are of the greatest importance and value in maintaining the genital tract *without unsexing the unfortunate woman* who is suffering from a fistule, not easily accessible to the surgeon's instruments and for the cure of which the late Prof. Simon, of Heidelberg, proposed and practised the shutting up of the vagina "*kolpokleisis*" an operation which Dr. Bozeman condemns as unjustifiable.

Dr. Bozeman substantiates his views by the statistics of one hundred and twenty cases treated by himself, the last fourteen of which were treated by genital anakainosis in the Woman's Hospital of the State of New York since his appointment as surgeon in February, 1878. He then gave the history of genital kleisis from 1832 when Vidal de Cassis first proposed to obliterate the vulva for the relief of incontinence of urine in cases of vesico-vaginal fistules, up to that time thought to be incurable. Up to 1845 not a single success was obtained by the operation; at this time Bérard tried the method and was successful in curing the woman, but on the seventeenth day after the operation she was seized with peritonitis and on the thirty-eighth day she died. Bérard was censured in a discussion before the French Academy of Medicine for having caused the death of his patient, and the procedure was condemned as irrational and undeserving of confidence. Jobert de Lamballe, however, modified the operation by obliterating the mouth of the womb for the relief of incontinence of urine resulting from vesico-uterine fistules; he also turned the cervix uteri into the bladder in vesico-utero-vaginal fistules. Eight or ten years later, Prof. Gustav Simon advocated the utility of kolpokleisis and extended the method to the urethral portion of the vagina in the form of transverse obliteration (Quere Obliteration der Scheide). In 1859 Dr. Bozeman performed it in one case. Prof. Simon's first case, Margaretha Hubert, he operated upon by kolpokleisis in 1855 for vesico-utero-vaginal fistule complicated by kolpostenosis; he used double rows of silk sutures. The operation being successful, it was adopted in Germany as a legitimate one. In 1867, Simon, in his book "On Plastic Surgery," states that up to that date he had closed the vagina successfully twenty-eight times by either transverse or oblique kolpokleisis, and eight indications for the procedure are given. *a*, Great loss of substance, making it impossible to bring the sides of the fistule together; *b*, the inaccessibility of the fistule; *c*, loss of the infra-vaginal cervix uteri and danger to the peritoneum; *d*, hemorrhage into bladder, if severe, after operation; *e*, incarceration of cervix in the bladder; *f*, atresia of the vagina above the fistule; *g*, atresia of the urethra with one fistule above and one below; *h*, uretero-vaginal and uretero-uterine fistules. In 1875, Dr. Herrgott, of Nancy, presented to the Academy of Medicine, of Paris, a memoir upon the obliterating operations of the vulva as well as of the vagina, and next to this Prof. Doublé published a classification of genital kleisis, dividing it into hysterokleisis, kolpokleisis, and episiokleisis. In a letter, addressed to Dr. Bozeman by the late Prof. G. Simon, published in the *Deutsche Klinik*, in 1868, defending his claim of priority of kolpokleisis, he furnishes a complete tabular statement of his operations from 1853 to 1868. Twenty-eight cases Simon treated by kolpokleisis alone, until he became Professor of Surgery in Heidelberg in 1868, at which place he operated on six cases according to his indications, making a total of thirty-four cases. Of these cases, thirty-one are claimed as having been cured, but only *ameliorated* by kolpokleisis. In this operation with the shutting up of the vagina he obtained 29.52 per cent of closures, while in his other fistule operations, by uniting the borders, he had 58.09 per cent of cures, and out of a total number of fistules operated upon by him Simon claimed out of one hundred and five cases ninety-two cures, with a death rate of 5.71 per cent. The main objection to kolpokleisis, besides the unsexing of the woman, Dr. Bozeman refers to the formation of calculi, the supervention of cystitis, nephritis, pyelitis, etc. In Dr. Hergott's four cases the mortality as an immediate result of his operations was twenty-five per cent.

Dr. Bozeman then relates cases in which kolpostenosis existed and pregnancy took place; where he saved the life of the child and possibly that of the mother's by kolpostenotomy and kolpoecpetasis. He had also cured cases where both recto-vaginal and vesico-vaginal fistules existed in the same woman, by kolpostenotomy and kolpoecpetasis. From extensive observation and from his conviction, already obtained by personal experience in 1870, that kolpokleisis was an exceedingly dangerous and unwarrantable operation, he recommended in preference genital anakainosis by kolpostenotomy and kolpoecpetasis. The doctor then presented a tabular statement of his fourteen cases, treated in the New York Woman's Hospital, with a statement of all his one hundred and twenty cases of fistules, and a comparison of their results with those of Prof. Simon.

Of the fourteen cases there were: 1, urethro-vaginal fistule; 2, urethro-vesico-vaginal fistules; 3, vesico-vaginal fistules; 6, vesico-utero-vaginal fistules; 1, vesico-utero-cervical fistule; 1, urethro-utero-vesico-vaginal fistule.

For the 14 fistules in 14 patients, 18 operations were performed, and 13 fistules in 13 patients were cured with preservation of the vagina; 1 patient with 1 fistule left his service after preparatory work.

Nearly all of these cases were of an aggravated character: one, with total destruction of the vesico-vaginal septum and two with incarcerated cervices uteri in the bladder.

The percentage of his success (92.85 per cent) is the highest ever reached, and was higher than Prof. Simon's, who operated on 118 fistules in 105 patients and claimed 92 cures, 87.62 per cent, including kolpokleidic cures, and cures alone by uniting the borders of the fistules. Dr. Bozeman then gave his own statistics of operations performed since 1855, when he adopted his new method of genital anakainosis, founded upon the principles of kolpostenotomy, kolpoecpetasis, cystoecpetasis, hysteroephelkosis, and splint-formed suture.

There were 150 fistules in 120 patients. The number of operations performed was 181. Of these cases, 101 were cured by uniting the borders of the fistules, with preservation of vagina =84.16%; 2 were treated and ameliorated by genital kleisis =1.66%; operations for each case cured=1.48%; 4 deaths =3.33%.

Dr. E. Van de Warker, of Syracuse, N. Y., then read a paper on

FORCIBLE ELONGATION OF PELVIC ADHESIONS.

The interest in the paper centered in the fact that the plan of treatment was brought forward for the relief of symptoms in a certain class of cases; one marked symptom in this special class being pain in defecation, and supposed to be due to traction made upon the rectum by adhesions which existed between its anterior wall and the uterus. Immunity from pain, he said, occurred under two circumstances: first, where there was such intimate union between the two surfaces that the organ could not move upon the parts below, and, second, where the adhesions were so elongated that movements might occur without taking up slack in the attachments. His method of operating was—dealing specially with posterior adhesions—to etherize the patient, and then with any convenient uterine dilator quickly and forcibly dilate the cervical canal. He then introduced a sound of large size. That which he employed in the cases reported was formed from a very large-sized male bougie, and turned the uterus forward, so that the fundus could be felt above the pubes, and at the same time he forced the organ more or less upward and forward, which, in some instances, could be done to the extent of an inch or more. The after-treatment consisted in keeping the patient in bed. No supports of any kind were needed; in fact, they were contra-indicated. If the adhesions showed a disposition to contract, they would not be prevented by the use of any support. The operation might be repeated at the end of two or three months, if thought necessary. A special point he insisted upon in the treatment was that which related to the law of unity of time, to which he had directed attention heretofore, and consisted essentially in doing all operative procedure at one time. He had operated in four cases; in the last case the patient was not benefited. The operation was performed, not for the correction of displacement, but for the relief of symptoms.

Dr. Mundé, of New York, had tried the method of treatment of which Dr. Van De Warker had spoken, but while he had usually succeeded in raising the uterus, the straightening had been only temporary, and he had always feared to use the force apparently required to tear the uterus from its adhesions.

Dr. Wilson, of Baltimore, said that he had not been able, under any circumstances, to replace the retroverted uterus held in position by adhesions, and keep it in position. It had not been his custom to use any kind of sound or repositor for the purpose of reducing this displacement, but he had always used the finger, believing it to be much safer, and to elongate the finger, if necessary, he had introduced a small-sized Hodge pessary, and then pressed against the bar of the double lever. He had not been of the opinion that this displacement could be effectually overcome by any forcible and sudden reposition.

Dr. A. Reeves Jackson, of Chicago, was convinced that the practice advocated by Dr. Van De Warker would be ineffectual, or, if not, that it was necessarily dangerous. He believed it to be impossible, by the means mentioned, to replace the uterus permanently, on account of the flexibility of the anterior wall of the rectum, unless it also be bound down. To forcibly replace it under such circumstances he believed would excite inflammatory action.

Dr. Engelmann, of St. Louis, thought it impossible either with the hand or an instrument to break up the adhesions in this class of cases.

Dr. Lyman, of Boston, thought that the uterus could not be replaced as Dr. Van De Warker had proposed, without great liability of doing serious damage to its lining membrane.

Dr. Chadwick, of Boston, protested against the method suggested by Dr. Van De Warker, and also the doctrines enunciated by Dr. Engelmann. He thought both were extremes. He had been in the habit of raising the retroverted and adherent womb for several years, and in perhaps five thousand cases in dispensary practice he had seen probably six or seven hundred in which there was fixation of the uterus in the retroverted position, with more or less adhesions. It had been his practice habitually to raise the uterus in such cases, provided there was no tenderness, and the active condition of inflammation had been passed for one, two, three months or more; but he had not used any force, except that which might cause very slight pain, and had done it persistently, in some cases, for months. And in all the cases he had given marked relief to symptoms, especially the backache, pain on defecation, dragging in the groin, etc., even though he had not succeeded in restoring the uterus permanently to its proper position. He believed that the adhesions stretched gradually, notwithstanding Dr. Engelmann's belief, based upon autopsies, that they are firm and unyielding. But he never used the sound for replacing the womb, and preferred to introduce a stem and then manipulate the organ bimanually.

Dr. A. H. Smith, of Philadelphia, thought that the discussion could be simplified by making a distinction between fixation and adhesion of the uterus; for there might be fixation without adhesion—fixation from habit, for example, such as exists in a patient who has carried a retroverted womb for years, not having had the malposition, which occurred accidentally, rectified. Such uteri he had been in the habit of replacing by mechanical force, according to the principles given by Dr. Van De Warker. For that purpose he preferred to use the largest-sized metallic male bougie he could introduce into the uterus; for with it the organ could be carried into position without any great danger of doing it mechanical injury. But in those cases he had not been able to retain the uterus in position without some mechanical support, and latterly he had used the intrauterine stem-pessary, supporting it, after the organ had become accustomed to the stem, with a retroversion pessary, and happy results had been obtained.

The paper was further discussed by Drs. J. M. Sims, Goodell, and closed by Dr. Van De Warker.

THE PRESIDENT'S ANNUAL ADDRESS.

The hour having arrived for the delivery of the President's annual address, it was read by the Secretary, Dr. Chadwick. After thanking the Society for the honor which it had conferred upon him, Dr. Byford proceeded to speak of Gynecology as an associated branch of medicine, and believed that the appellation "specialty" should not be applied to it. He regarded the American Gynecological Society as the legitimate outgrowth of the rapid strides which had been made in this department of medicine, especially in contrast with what has more usually been called the department of Surgery. He then referred to the organization of the Society and its early history. The social enjoyments of the Society he regarded as not the least important. He believed that the experiment of meeting in the West had proved not to be a safe one, but that the annual meetings of the Society should be held in some of the important cities on the sea-board. Dr. Byford then referred to the work which had been done by the Society, as represented by its five volumes of transactions, and of the special value in which they were held and appreciated, not only at home, but abroad. The chief portion of his address was devoted to the consideration of the subject of a McDowell fund, in honor of the late Ephraim McDowell; a fund, the interest of which could be expended for prize essays, and he suggested that the American Gynecological Society should be its custodian. The recognition which the profession had already given to the genius and labors of Ephraim McDowell had been chiefly confined to the medical profession of the State of Kentucky. His plan proposed that all interested in ovariotomy should have an opportunity to contribute to this fund, and one feature of his plan was, that every ovariotomist should contribute either five or ten dollars of his fees from each operation. Whether the plan which he suggested should be matured and put into operation or not, was not a matter of so much interest to him as that some plan, well devised and carefully matured, should be put into operation for the more substantial recognition of him who may justly be called the father of ovariotomy. The address closed with congratulatory remarks upon the success which the Society had already obtained in the performance of its special work.

Dr. Isaac E. Taylor, of New York, then read a paper entitled

ESTHIOMENE, OR LUPUS OF THE VULVA.

The paper contained the history of seven cases, and was accompanied with colored illustrations. Although the disease had long been recognized, it was rarely seen upon the genital organs. When it occurred in that region, the pathological changes did not differ from those present when it occurred upon the face or other parts of the body. Of the seven cases reported, two were cured, two relieved, two unrelieved, and one patient died. Dr. Taylor gave a résumé of the history of the disease, and spoke at some length upon the various theories regarding its essential nature: as, for example, whether or not it were scrofulous, epitheliomatous, or, according to some authors, a mixed disease. He believed, however, that the affection was primarily a local disease, which might be allied to, or grafted upon, some constitutional disease, as scrofula, syphilis, or cancer. The essential pathology he regarded as an outgrowth of the cutis alone. It was not contagious, it was not inoculable. With reference to the treatment, it was essentially local. He had tried in some cases constitutional remedies of various kinds, particularly the bichloride of mercury in small doses, and continued for a long time, or Donovan's solution, and apparently with benefit in some cases. Locally he had used the pernitrate of mercury, curetting, excision of the elevations, etc. Unguents should be avoided. The special feature in the local treatment was, that harm should not be done to the tissues below. Dr. Taylor then exhibited an écraseur which many years ago he had devised for the removal of such excrescences.

Dr. John Bryne of Brooklyn remarked, that he had had several such cases, and that he had quite frequently treated them by the use of the galvano-cautery. He had at present under care one very typical case. His method of treatment was purely surgical, and consisted in excising the mass thoroughly with the cautery, and then thoroughly cauterizing all subjacent tissue. When so done, the parts had granulated and healed kindly, and the process of repair had gone on without difficulty. Dr. Byrne then cited two cases which had been operated upon in this way, and the patients had apparently been cured. If the écraseur were used, he would not trust to that alone, but he would certainly cauterize the stump. He advocated strongly the removal of such tissue as could be spared, and then to thoroughly cauterize the subjacent parts.

The paper was further discussed by Dr. Kimball, of Lowell, Dr. Barker, of New York, and Dr. Wilson, of Baltimore.

The Society then adjourned to meet at 3 P.M.

Second Day—Afternoon Session.

The Society was called to order at 3 P.M. by the Second Vice-President, Dr. H. F. Campbell, of Augusta, Ga.

Dr. William Goodell, of Philadelphia, then read a paper on

BURSTING CYSTS OF THE ABDOMEN.

He made special reference to cysts which, of their own accord, burst and refilled. Illustrative cases were given: first, that of a patient who had an abdominal tumor from which she was greatly oppressed with a bursting sensation. It was aspirated, and eight quarts of blood-stained fluid were withdrawn. It was subsequently aspirated, and the fluid withdrawn was of a greenish color. He regarded it as a monocyst of the right ovary. Subsequently a day was appointed for aspiration, but before the operation was performed the cyst burst spontaneously. On four occasions it burst spontaneously, and was tapped probably about a dozen times. Finally the condition of the patient became such as to render the removal of the tumor necessary. The cyst-wall was found to be exceedingly thin and of a beautiful conjunctival blue color. The tumor was ostensibly that of cystic degeneration of the ovary, but, upon more careful examination after its removal, it was proven to be ovarian and parovarian. A second case was reported in which what was supposed to be an ovarian cyst burst, and the patient remained cured for nineteen months. At an operation subsequently performed it was found that the cyst-wall was very thin, and that it contained a turbid fluid, and that it was extra-ovarian. He therefore regarded it as a bursting cyst of the parovarium. The author then gave some statistics of the greater mortality of bursting ovarian cysts. A collection of ninety-seven cases was cited in which there were forty-six deaths and fifty-one recoveries. When, however, parovarian cysts ruptured, the fluid was so bland that fatal results did not usually occur. He had been able to find the record of only one fatal case. While tapping may cure parovarian cysts, spontaneous rupture does not always terminate so, for the cyst is apt to refill. He had tapped in five cases, the fluid was clear like spring water, and in none had the cyst refilled. Cysts of the parovarium are almost always unilocular. They may be bilocular or multilocular, but the latter are very rare. It is questionable whether a true unilocular cyst of the ovary has ever existed. The parovarian cyst is usually slow in development as compared with ovarian cysts. Some of them develop a remarkable disposition to remain stationary; and one peculiarity of stationary cysts is that they are frequently in a flaccid condition; that is, they exhibit varying degrees of distention according as the quantity of fluid which they contain changes at different times. Such variations in distention he had not seen in connection with ovarian cysts.

Dr. H. J. Garrigues, of New York, remarked that, among some of the most scientific gynecologists, it had become quite fashionable of late to substitute the term cyst of the parovaria for the term which has been in common use, cyst of the broad ligament. He doubted the advantage of the substitution. Of course, the parovaria can become the seat of a true cyst, but cysts might also occur, and very frequently did, along the course of the Fallopian tube, and he thought that it was not possible to say, when we had to deal with such a cyst, whether it is parovarian or not, if it has been developed in the outer part of the broad ligament. He believed, therefore, that it would be as well to retain the term, cyst of the broad ligament. It was extremely difficult to distinguish anatomically with certainty between a cyst of the broad ligament and an ovarian cyst; or an ovarian cyst and an extra-ovarian. He knew of no absolute proof that we have to deal with an extra-ovarian cyst, except that the ovary is found separated from it. On the other hand, he knew of one proof that the cyst is ovarian and not extra-ovarian; and that is, it is ovarian when it is covered with columnar epithelium.

Dr. Garrigues had seen a monocyst of the ovary, and had no doubt that it existed, but it was exceedingly rare.

The paper was discussed by Drs. Barker and Sims, of New York; Kimball, of Lowell; Dunlap, of Springfield, O.; Wilson, of Baltimore; Drysdale, of Philadelphia; Reamy, of Cincinnati; and Kinloch, of South Carolina; all of whom gave the history of cases in which spontaneous rupture of ovarian cysts had occurred. The discussion was closed by Dr. Goodell, who could not resist the conclusion that some of the gentlemen had mistaken parovarian for ovarian cysts. Although it was difficult, as Dr. Garrigues had said, to distinguish between cyst of the broad ligament and ovarian cyst, yet he thought there were distinguishing features by which they could usually be recognized. For example, in the parovarian cyst the oviduct was of unusual length, and there was less of the fimbriæ in the body of the tumor; the peritoneal covering can be stripped off with ease as a rule, etc.

Dr. H. F. Campbell, of Augusta, Ga., read a paper entitled

ERYSIPELAS IN CHILD-BED WITHOUT PUERPERAL PERITONITIS.

The author commenced by saying that heretofore it had been the practice that a previous or recent attendance by a physician upon a case of puerperal fever or puerperal peritonitis debarred him from attending any cases of labor through fear of manual transmission of the poison of the disease to the lying-in women. It had also been regarded as scarcely less obnoxious for the physician or nurse to attend upon a case of erysipelas and subsequently to attend upon a lying-in woman. Dr. Campbell then proceeded to relate the history of a case in which a woman had well-marked facial erysipelas, and subsequently passed through labor without complication, and recovered without a single unfavorable symptom. The child, however, died on the fourth day. There was not in the case the slightest evidence of peritoneal inflammation, or tenderness, or hyperesthesia. He thought it possible that the treatment might have had something to do with the recovery, although the patient recovered to his utter astonishment. The treatment consisted in the administration of large and repeated doses of quinine, bicarbonate of soda, sulphite of soda, and local applications of sulphite of soda to the face. The question was, Was the great apprehension about coming in contact with cases of erysipelas and subsequently attending cases of confinement well based? The present case would seem to deny that principle entirely. He reported it for the purpose of obtaining an expression of opinion of the Fellows of the Society.

Dr. M. Putnam Jacobi, of New York, suggested that Dr. Campbell's case could be explained on the ground that erysipelas is primarily a disease of the lymphatic system, and might be confined to that system without the blood becoming affected. As there was no anatomical connection between the erysipelas of the face and the uterus, the wounded surface of the latter was not really exposed to the poison.

Dr. Goodell, of Philadelphia, believed that there is an intimate relation between erysipelas and puerperal fever, but to have that relation developed, he also believed it to be necessary to have the phlegmonous variety of erysipelas.

Dr. Wilson, of Baltimore, referred to an extensive epidemic of puerperal fever following erysipelas in a public institution in Baltimore that occurred some twenty-five years ago. Every woman who was confined had puerperal fever and died, and the epidemic was arrested only by removal of every woman to be confined to out-houses. And yet, though in daily attendance upon these patients for hours, not a single case of puerperal fever occurred in his private practice. He had never been able in his own private practice to trace a case of puerperal fever to a case of erysipelas as the cause.

Dr. Smith, of Philadelphia, thought that thorough disinfection of the hands would prevent the physician from communicating the disease.

Dr. Lyman, of Boston, did not attend cases of labor soon after attending cases of erysipelas.

Dr. Ellwood Wilson, of Philadelphia, thought that thorough disinfection of the hands and clothing was almost invariably certain to exempt one from conveying the poison of erysipelas or scarlet fever.

Dr. Barker, of New York, believed that the intimate relationship between puerperal fever and erysipelas has been as firmly established as any fact in medicine. It was possible that with proper disinfection a physician might attend a case of simple facial erysipelas, and subsequently attend a case of confinement without harm; but the risk should not be taken with reference to cases of phlegmonous erysipelas or surgical erysipelas with suppuration.

The Society then adjourned to meet on Friday at 10.30 A.M.

Friday—Third Day—Morning Session.

The Society was called to order at 11 A.M. by Dr. Campbell.

THE EXPANSION OF THE BLADDER OVER THE SURFACE OF ABDOMINAL TUMORS AND ITS ATTACHMENT TO THEM, OR TO THE ABDOMINAL WALLS, AS A COMPLICATION OF LAPAROTOMY,

was the title of the paper then read by Dr. T. Gaillard Thomas, of New York. The author commenced by saying that during the last thirty years no operation in the whole field of surgery had attracted more attention, had been more carefully considered in its various steps and complications, or had been more thoroughly investigated, than ovariotomy. Not only had a very large experience been accumulated concerning it, but the results of such experience had been disseminated in all parts of the world. It was, however, a most striking and noteworthy fact that, notwithstanding this amount of careful study and prolonged investigation for the perfection of capital surgical procedure, there were even yet special points which made their appearance, and which thus far had almost entirely escaped attention. They were even unknown to men who were only exposing their own interests and those of their patients to the arbitrament of the knife, and had not been mentioned in works specially devoted to the consideration of the operation in question. An illustration of this statement could be found in the complication to which he proposed to direct the attention of the Society, namely, the expansion of the bladder over the surface of abdominal tumors, and its firm adhesion to them or to the abdominal walls. By the term expansion, he meant that which consists in an apron-like spreading of the bladder, which is trebled or quadrupled in size over the whole of the anterior surface of the tumor from the umbilicus, or a point above it, downwards to the pelvis. The literature of the subject had furnished us with seven cases of this character, in all of which a fatal issue had been the consequence of the adhesion, either from direct injury done to the bladder—the surgeon not recognizing the complication—or from failure to remove the tumor on account of its existence; and yet, in no work with which he was acquainted was this condition systematically dealt with. As to the pathology of the condition, little need be said.

Dr. Thomas then proceeded to give a short sketch of all the cases of this kind of which he had been able to obtain any history, closing with a more complete account of one which had recently occurred in his own practice, and which had suggested the paper. For a knowledge of three cases he was indebted to Dr. Garrigues, of New York. The first was one reported by Dr. Bergeman, in the *Petersburger Medicinische Zeitschrift*, 1869; the second case was reported in the *Deutsche Klinik*, for 1869, by Dr. B. Stilling; the third was a case reported by Richard Neale, of London, and published in the *Medical Times and Gazette* for November 28th, 1868. The fourth case was one which occurred in the practice of Dr. Montrose A. Pallen, in the summer of 1868, in the city of St. Louis; the fifth was a case in which he assisted Dr. X. in an operation for laparotomy, undertaken for the removal of a large uterine fibroid, which equalled in size the gravid uterus at the seventh month; the sixth case occurred in the practice of Dr. Leroy McLane, of Troy, New York, and was reported in the New York *Medical Record*, February 8th, 1879. The seventh case was one of ovariotomy, performed for the removal of a large tumor by Dr. E. Noeggerath, in Mt. Sinai Hospital, in New York, October 8th, 1880. The case was reported in the Transactions of the New York Obstetrical Society. The eighth case was the one which suggested the paper, and embodied Dr. Thomas's personal experience in dealing with this complication. Miss C., aged thirty-eight years, a native of Canada, entered his service in the Woman's Hospital in November, 1880, on account of a large multilocular ovarian tumor, and on the sixth of that month she was submitted to operation. An incision about three inches and a half in length was made in the median line, and the tumor was seen presenting a peculiar appearance, which arrested his hand just as he was about to plunge in the trocar and canula. He then enlarged the abdominal incision, and upon careful inspection was led to suspect that the mass covering the tumor might be the bladder. He endeavored to settle this point by passing a long catheter, but the tumor pressed so firmly against the pubes that it could not be introduced beyond that point. Becoming convinced more and more that he had to deal with a case of extensive vesical adhesion, he tried to determine the points at which the bladder was attached to the tumor, but he was unable to do so, so completely did the bladder seem united with the tumor. There was then this perplexing difficulty of affairs: there intervened between the abdominal incision and the tumor a mass which he regarded as the bladder, spread over on both sides to such an extent that he could not evacuate it by the trocar, nor tear off the adherent organ on account of the firmness of its attachment and his uncertainty as to the limits of the misplaced viscus. Nothing was gained by still farther enlarging the abdominal incision. For a time he thought it would be necessary to close the abdominal wound, and leave his patient to the fate which he felt powerless to avert. But it occurred to him that if he could tell exactly where the upward limits of the attached viscus were, he would be able to cut it away, and to accomplish this he decided to go directly through the anterior wall of the bladder, so that one or two fingers could be inserted. Such an incision was accordingly made, and he passed the index finger of the left hand into the bladder, and was able by so doing to learn exactly the extent of the viscus, and to cut down upon the tumor, severing the strong attachment. In this way, exposing with the finger or fingers, cutting down at the appropriate point, tearing adhesions after cutting, he soon freed the bladder entirely from its attachments. A great deal of hemorrhage followed, and quite a number of ligatures had to be applied to bleeding vessels. After this the trocar was plunged into the tumor, and it was removed in the usual way, its pedicle cut, ligated, and returned to the peritoneal cavity. Returning the bladder to the peritoneal cavity he employed Peaslee's needle, and closed the abdominal wound from above downwards, as is ordinarily done in this city, and twisted the silver sutures employed until the wound was closed to the opening in the bladder. Having arrived at this point he passed the needle through the abdominal wall, then through one vesical wall, then through the other, and lastly through the opposite abdominal wall, and so continued to do until the whole opening in the bladder was traversed by sutures. The sutures were then twisted, care being taken to lift the bladder well up to the surface, and the operation was completed. A Sims' sigmoid catheter was kept in the bladder, the patient removed to bed, and the after-treatment conducted upon general principles. Convalescence was regular and rapid. The sutures were removed on the tenth day, and the case progressed favorably until the fourteenth day, when a slight oozing of urine was discovered from an opening not larger than a cambric needle in the line of the incision. Subsequently Dr. Thomas twisted a small tenotome in the minute opening, and passed a suture which closed it entirely. At the end of three months the patient went back to Canada perfectly well.

With reference to diagnosis when this complication exists, Dr. Thomas believed it to be impossible to make a correct one before the abdominal incision was made. The only method by which it could be accomplished was by the use of the catheter, and the value of this, one who had had no experience in such cases would naturally regard as very great, but in his case employed even after abdominal incision had excited strong suspicion as to the existence of the complication, it was entirely inefficient on account of the great size of the tumor and the pressure which it exerted upon the bladder at the symphysis pubis. The operator must depend upon his own quickness of perception, and upon the careful examination of suspicious tissues by sight, touch, the tenaculum, and the scalpel. If the bladder be attached to the tumor extensively and closely, diagnosis by these means will generally prove difficult; if it be attached to the abdominal wall, it will be still more difficult. After the diagnosis is made, the adherent bladder should, if possible, be separated by digital detachment; if the attachments are so strong that they cannot be broken without danger of lacerating the bladder, he recommended making an incision in the anterior wall of the organ, introducing the index finger as a guide to its outer limits, and then cutting through the adhesions. After the anterior wall of the bladder has been incised, either by accident or intentionally, it seemed to him that the plan of clamping the lips of the incision between those of the abdominal wound promised much better results than that of sewing up the opening with sutures and returning the repaired viscus to the abdominal cavity.

The paper was discussed by Drs. Kimball, Noeggerath, Engelmann, Goodell, Emmet, and Drysdale.

Dr. T. A. Reamy, of Cincinnati, then read a paper, entitled:

A CASE OF PARTIAL INVERSION OF THE UTERUS CAUSED BY A FIBROID POLYP.

It was accompanied by a specimen. The tumor at the time of the operation was found to be attached to the fundus to the extent of two inches, and at the time of its removal it weighed one pound and three quarters. It measured five inches and a half in its transverse diameter, and three inches from above below. It had no pedicle; it exhibited a cup-shaped depression at the point where it was dissected from the uterine wall. The patient was an unmarried lady aged twenty-four years who menstruated irregularly during the first six months of her menstrual life, but subsequently her periods were regular up to the age of twenty-one. From that time menstruation became more prolonged, and she suffered occasionally from metrorrhagia, and sometimes the vaginal discharge was irritating in character. Her health declined rapidly. On several occasions vaginal hemorrhage was profuse. One peculiarity in the case was, that Dr. Reamy was unable to obtain any evidence by physical exploration of cupping of the fundus. He supposed that he had detected the existence of a pedicle, however, before the operation, but at the time of the operation what was supposed to be a pedicle was demonstrated to be only an inverted portion of the uterus. With much difficulty he succeeded in applying the écraseur to what was supposed to be the pedicle of the polyp, but before he was able to complete the operation the chain broke, an accident which he regarded as exceedingly fortunate in view of the subsequent history of the case; for, had it not broken, doubtless he would have removed the inverted portion of the uterus. The case was interesting as illustrating the difficulty of diagnosis notwithstanding all the improved methods, and showed that there is danger of making the mistake of regarding an inverted portion of the uterus as the pedicle of a polypus. In the light of the present case he should hereafter be exceedingly solicitous with regard to diagnosis, and in the least doubtful cases he should hesitate, and at once quarter the tumor with the scissors and clear up this doubtful point. It seemed to him clear that the tumor was delivered from the uterus on the night previous to the day designated for the operation, and that the inversion which existed in the uterus was not gradual in its origin.

Dr. J. Marion Sims, of New York, thought that if Dr. Reamy had not broken the écraseur he probably would have safely removed the tumor, for Spencer Wells, Savage, and others had removed an inverted uterus, thinking that it was a polypus, and the patients had generally done well. He thought there was no doubt that the tumor was expelled from the uterus as Dr. Reamy had supposed, and the reason why he found on the next morning that the uterine cavity measured only two inches and a half was simply that the uterus had doubled upon itself.

Dr. Barker, of New York, referred to a case which had a peculiar feature, namely, that when the tumor was delivered and the pedicle cut, just as the last part of the incision was completed, the uterus, which had been inverted by the operation, immediately replaced itself with an audible noise.

Dr. Goodell, of Philadelphia, thought that in these cases it was safer to proceed in the way described by Dr. Sims and Dr. Barker, namely, by drawing the tumor fully into view, for then the operator might be able to find a line of demarcation. He then referred to a case in which he removed a polypus about the size of a fetal head. It was necessary to make extensive lateral incisions into the perineum, but despite that the perineum was torn extensively. But when the tumor was delivered he found a line of demarcation, and in that instance it was unnecessary to use any instrument for its removal. The capsule was incised, and the tumor enucleated without the slightest difficulty. The perineum was closed with sutures, and the patient made a good recovery.

Dr. W. T. Lusk, of New York, remarked, concerning the case to which Dr. Reamy had made reference, and which had been reported to the New York Obstetrical Society, that there was a distinct cup-shaped cavity felt through the abdominal wall, and when the tumor was reversed it could be felt through the rectum. The special point upon which at the time of the operation there was a difference of opinion was, as to whether it was a case of inverted uterus, or a polypus. After the tumor was withdrawn, there was no line of demarcation between it and the uterine surface.

Dr. Byrne, of Brooklyn, had seen two cases precisely similar to that reported by Dr. Reamy; and he remarked that if there was any means of disposing of such masses more dangerous than another it was the écraseur. He should prefer to dissect such masses piecemeal by any means rather than apply the chain. When there is any doubt as to whether there is a partial inversion of the fundus of the uterus, an important point is to return the mass before any tightening is made. If the tumor is in the vagina it should be pushed up as far as possible. In one case he escaped taking away a large portion of the fundus of the uterus by exercising this precaution. With regard to the means employed for removing these masses, he had used only a heated wire.

Dr. Mary Putnam Jacobi, of New York, a member by invitation, referred to the use of Dr. Thomas' serrated scoop in the removal of fibroids of the uterus. She also referred to a point in the pathology of the disease, and suggested that the point of departure was in the embryonic cells found under the epithelium of the mucous membrane of the uterus, and that the fibrous tissue and the muscular structure are of secondary development.

The paper was also further discussed by Drs. Taylor and Emmet of New York, and the discussion was closed by Dr. Reamy. He directed special attention to the fact that the partial inversion in his case could not have become complete because of the inability of the tumor to escape through the rigid vulvar opening.

Third Day—Afternoon Session.

The Society was called to order at 3 P M. by Dr. Campbell.

Dr. A. H. Smith, of Philadelphia, then read a paper on

AXIS TRACTION OF THE OBSTETRIC FORCEPS.

The paper began with a consideration of the problem of the obstetric forceps expressed in the question, How shall instrumental delivery be effected as nearly as possible according to the process of nature, with the least strain upon the tissues of the mother and the child, and with the least expenditure of strength upon the part of the operator? To accomplish this most effectually, the force employed must be exerted contrary to the line of resistance, therefore necessarily in the line of the pelvic axis. Dr. Smith, after giving the following propositions, first, that the axis traction may be exerted in the corresponding axis of the canal; second, that it may be exerted perpendicularly to the axis of the canal;

third, that it may be exerted obliquely, proceeded to speak of the want of appreciation which existed generally upon this subject. Hodge was the only one among American or English authors who gave any decided details as to the method of application of traction. Most obstetric authorities urged that traction should be made in a line coincident with the pelvic axis, but none of them make any reference to the details of the operation. Hodge simply mentions that the traction should be made backward and downward, making pressure downward with one hand upon the lock of the instrument. The mathematical argument of the question the author of the paper did not enter upon, because that had been so thoroughly studied and presented by other writers. For himself, he had settled the question that axis traction was the only proper method by which a child could be delivered with forceps. and he raised the question whether the ordinary forceps, well constructed, was not sufficient to do all that was required in this direction. There was no doubt but what the old teachers and writers on obstetrics recognized in their every-day experience the necessity for axis traction, but none of them had given any suggestion in regard to the matter in their works. The first writer who had called attention to the subject was Osiander, of Goettingen, in 1799, who speaks of it as being necessary, and describes the method by which it can be accomplished. But no reference has been made to his work except among German writers. Dr. Smith then proceeded to give the views of this old author, and gave a detailed description of his method. It was essential that pressure should be made downward upon the lock of the instrument in a line parallel with the axis of the superior strait, or the strait of that portion of the pelvis in which the head of the child is engaged, and at the same time make upward leverage with the other hand on the handles of the forceps. This was the principle enunciated by Osiander, and it was that which Dr. Smith believed all obstetricians would adopt sooner or later. The same principle was recognized by Naegele in 1843, when he recommended the use of a fillet placed over the lock of the instrument, by which traction could be made downward. Next was Hermann, of Berne, and in the forceps devised by that obstetrician Dr. Smith had found the traction forceps of Tarnier. Hermann's instrument also has a perineal curve. After giving a description of Hermann's forceps, an account of how he obtained a sample, Dr. Smith proceeded to speak particularly of Tarnier's forceps, and remarked that he regarded them as exceedingly dangerous and complicated, although he had not used them upon the living subject. His objection to Tarnier's forceps and, indeed, to all forceps with separate traction rods, was, first, and theoretically, they are complex and expensive. He believed that every change or modification of the obstetric forceps which reduced its simplicity detracted from its utility. His second objection was difficulty of disinfection; in the third place he objected to the compressing screw, and in the fourth place, by making traction blindly it cannot do what it professes to do, make axis traction at all. Dr. Smith then asked the question, Can axis traction be effected by any maneuvre with ordinary forceps? His answer was emphatically in the affirmative; and he said that he stood the humble advocate of the principle enunciated by Osiander, and which could be formulated as follows: Place the palmar surface of one hand upon the lock, and the index finger of the same hand in contact with the head of the child; then make downward pressure with the same hand firmly fixed upon the lock, exactly in a line parallel with the plane of the axis, while, with the other hand upon the handle of the instrument, the pressure downward is antagonized by lifting upward, producing thereby a leverage. One feature in Osiander's method Dr. Smith entirely discarded, namely, the rotary or pendulum movement. To accomplish delivery according to the principle enunciated, it is his practice to use the simplest ordinary obstetric forceps; and that which he specially recommended as best of all was the Davis forceps. He then illustrated upon the manikin with the long Davis forceps how a child could be delivered from the superior strait, and also how a child could be delivered with one hand with the Davis short forceps in accordance with the same principle, when only a slight degree of axis traction was necessary.

Dr. William T. Lusk, of New York, gave a demonstration of the use of Tarnier's forceps, and advocated their special applicability to cases in which the head of the child is at the brim of a moderately contracted pelvis, and the instrument must be used within the cavity of the uterus. For about two inches of the pelvic canal they were exceedingly serviceable; but for the entire length of the canal they were most dangerous instruments.

Dr. Barker, of New York, spoke of the value of Tarnier's forceps in a certain class of cases where the head is high up and prompt delivery is demanded.

Dr. Howard, of Baltimore, indorsed Tarnier's forceps, and cited cases in which he had effected delivery with the greatest facility after other forceps had been used unsuccessfully.

Dr. Ellwood Wilson, of Philadelphia, was glad to hear that the Tarnier forceps should be discarded in a large class of cases—that is, when the head is low down in the pelvis. He had had no experience in the use of Tarnier's forceps, but theoretically did not regard them as in any way superior to the more ordinary instruments.

Dr. Thomas, of New York, indorsed the Tarnier forceps for a certain class of cases, and regarded the instrument as an advance in the way of mechanical appliances for the relief of human suffering.

Dr. Taylor, of New York, thought that, if the instrument was guided by an intelligent hand, it mattered but little what orm was employed.

Dr. Reamy, of Cincinnati, had used the Tarnier forceps, and yet was not willing to fully accept it. He thought that its use was admissible, even less frequently than stated by Dr. Lusk.

The discussion was closed by Dr. Smith, who said that his paper was not an attack upon Tarnier's forceps, but one in which he simply attempted to prove that the old forceps were sufficient to do all that was required.

The following officers were elected for the ensuing year:—

President.—Dr. T. Addis Emmet, of New York.

Vice-Presidents.—Dr. G. H. Lyman, of Boston, and Dr. E. Noeggerath, of New York.

Secretary.—Dr. James R. Chadwick, of Boston.

Treasurer.—Dr. Paul F. Mundé, of New York.

Council.—Drs. H. J. Garrigues, of New York; Jas. D. Trask, of Astoria, N. Y.; G. H. Bixby, of Boston, and G. J. Engelmann, of St. Louis.

Honorary Fellows.—Tarnier, of Paris; Braxton Hicks, of London, and Winckel, of Dresden.

Active Fellows.—Drs. Wm. M. Polk, Chas. C. Lee, W. R. Gillette, and Frank P. Foster, of New York; Edward W. Sawyer, of Chicago, Ill., and B. B. Browne, of Baltimore.

The next Annual Meeting will be held in the city of Boston in the third week in September, 1882.

REVIEWS.

The Transactions of the Edinburgh Obstetrical Society. Vol. V. Sessions 1877–78, '78–79, '79–80. Edinburgh: Oliver & Boyd, Publishers to the Society, 1880.

The volume before us comprises the society's transactions for three entire sessions, and is therefore considerably larger than the previous ones. In general outfit it is also much superior to the former publications of the society's proceedings. It appears that the editors have been enabled to make new arrangements with their publishers. By virtue of these arrangements, not only "a complete report of all the more important papers, but also a fuller abstract of the discussions than was possible in former volumes" is furnished. In its improved shape the book contains an "almost complete epitome of the public business of the society." And this is as it should be, for we are thus placed in a position to better appreciate, than was formerly the case, the work accomplished by our transatlantic brethren in this special branch of the profession. We cannot, of course, undertake to do more than give a very succinct account of some of the more important papers contained in this large volume of some 550 odd pages, particularly as many of the contributions contained therein have already appeared elsewhere.

The volume opens with a very able and withal practical address on the treatment of uterine fibroids, by Professor Simpson, the then president of the society. The surgical treatment is described under the headings of torsion, cutting, crushing, or scratching. The use of Thomas' serrated scoop is also alluded to as a method well adapted to fulfil its object. Simpson's nail-curette is likewise described, and the indications for its use stated by the citing of a case in point. An interesting communication from the late Prof. Simon, of Heidelberg, was read, entitled: "Successful operation of a very large vesico-vaginal fistula, occurring in a child eight years of age." The large defect was caused by the suppuration through the vesico-vaginal wall of a calculus weighing 693 grains (45 grammes). The fistula, although having exceptionally thin walls, healed perfectly. This case is probably unique.

A note on two contrasted forms of weak labor, by Matthews Duncan, is given in abstract. The ordinary common form of uterine inertia is contrasted with a variety of uterine hyper-activity, observable chiefly in primiparæ, or in young women who have a special nervous mobility. Whereas stimulants and oxytocics are indicated in the former condition, soothing treatment and narcotics should be resorted to in the latter. In a paper on retention of urine in the female, Dr. Halliday Croon concludes that a vaginal examination is necessary in all such cases, and that a gum-elastic male catheter of medium size, without the stylet is the best form of instrument to employ.

Dr. Mundé's well-known paper on the dull wire curette in gynecological practice called forth considerable comment, most of which was favorable to its use. Dr. Keiller did not wish to see the instrument used quite so freely as Dr. Mundé seemed in the habit of doing. To Prof. Simpson the use of the curette for diagnostic purposes was quite new, and he thought its introduction an important step in advance in gynecological practice. Placental fragments, however, he preferred to take away with the finger. Dr. Angus Macdonald hailed its introduction with pleasure, thinking it was useful both as a means of diagnosis and as a therapeutic contrivance.

The condition of the hymen, and its remains after cohabitation, child-bearing, and lying-in, is made the subject of remarks accompanied by numerous illustrations, by Prof. Schroeder, of Berlin.

A rather elaborate contribution on the subject of placenta previa, or unavoidable hemorrhage, is made by Dr. Charles Bell. Dr. Macdonald dissented from several of the views expressed by Bell, but on the whole conceded the value of his paper.

Dr. Croom points out the value of rapid dilatation of the urethra and neck of the bladder as an aid in uterine diagnosis. In a paper on curettes and curetting, Dr. Keiller describes the instrument which he has been in the habit of employing. It differs from Thomas' curette in having a larger terminal loop. Dr. Mundé's paper was again repeatedly referred to in this connection, and while the high place which the dull wire curette should occupy was freely conceded, the utmost caution in using even this apparently so harmless instrument was insisted upon.

The risks and treatment of intrauterine hydrocephalus as a complication of labor are illustrated by a case in point narrated by Dr. Angus Macdonald.

Dr. Baird contributes a paper on the etiology of puerperal fever, which displays the various causes of this frequent disease. In discussing this communication, Dr. Simpson remarked that the puerperal condition caused women to suffer from an even very slight introduction of septic material.

Dr. Simpson narrates two cases of placenta previa occurring in elderly primiparæ, and he supplements his communication by some interesting remarks on sterility from persistence of the hymen and from retroflexion of the uterus, on the peculiarities of the third stage in cases of placenta previa, on the remote results of hemorrhage during labor, and on the relation of placenta previa to primiparity.

Dr. Hart contributes an original study of vertical sections of the female pelvis, in relation to the normal support of the uterus and prolapsus uteri. It demonstrates anew the importance of the perineal body as regards the prevention of uterine prolapse.

Head flexion in labor is made the subject of quite an elaborate essay by Dr. Simpson. The nature, causes, sphere, and effect of the forward bending of the infantile head are fully explained in this paper. The use of the volsella in gynecology is also discussed by the same gentleman in a way calculated to bring out the wide applicability and great utility of this instrument.

Dr. Macdonald makes a practical contribution on the treatment of abortion, which he considers under four headings: 1. The treatment of threatened abortion; 2. The treatment of abortion after it is clearly impossible to prevent interruption of the pregnancy; 3. The after-management during the lying-in week; and 4. The treatment of placental polypi and other causes of hemorrhage traceable to abortion.

Intrauterine puerperal coagula are made the subject of an interesting as well as important communication from Dr. Matthews Duncan, in which the sometimes overlooked significance of this pathological condition is well set forth.

Dr. Simpson suggests a new means for comminuting the fetal head in cases of obstructed labor, by the method which he calls basilysis. The new instrument devised by him for purposes of disintegration at the base is called a basilyst, and Simpson believes it is destined to supersede the cranioclast and cephalotribe in the special sphere of their applicability.

In an anatomical paper on the position and distention of the female bladder, Dr. Hart reaches the following conclusions: 1. The retro-pubic anatomical attachments of the bladder admit of its distention and passage upwards. 2. Supra-pubic palpation gives no sure indication of the amount of urinary distention. 3. When the summit of the bladder is above the pubis, it may be the result of pure distention, or distention plus a tilting-up, or finally a drawing up of the bladder, with almost no distention.

Dr. Charles Bell has found no remedy so effectual in purifying the system as the Edinburgh preparation of the tincture of the muriate of iron when given regularly in full doses frequently repeated. Accordingly he has given the drug in cases of puerperal fever, and he has invariably been pleased with its good effects.

The volume closes with a practical contribution on the use of the forceps by Dr. Simpson. This paper, besides containing the general indications for the use of the instrument, discusses especially the meaning and value of arrangements for axis-traction, and formulates the rules that should guide us in the employment, application, and working, both of the axis-traction forceps and the ordinary obstetrical forceps. EDMUND C. WENDT.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON. Vol. XXII. For the year 1880. London: Longmans, Green & Co., 1881.

This volume contains the usual society matters, such as lists of officers, members, etc., together with the papers read at the regular meetings, and the discussions held in connection therewith.

The subject of pain in pelvic cancer and its relief by morphia chiefly hypodermically is a very welcome study offered by Dr. Champneys. The writer had the opportunity of observing fifty cases of cancer in the wards of St. Bartholomew's Hospital. Dr. Anderson, of Jamaica, in a short note recommends the use of "Cotton-leaf tea" (*Gossypium Barbadense*) as an efficient galactagogue. Dr. Carter reports two interesting cases of foreign body in the vagina, one removed after a four years' stay, and the other after having been two years in the vagina.

A contribution from Dr. Lawson Tait on axial rotation of ovarian tumors, leading to their strangulation and gangrene, based on the study of three cases successfully treated by immediate ovariotomy, will doubtless be read with interest by all gynecologists.

Dr. Knowsley Thornton reports two cases of removal of uterine fibroids by laparotomy, in order to show that this operation is not only justifiable, but is destined soon to occupy a position among surgical procedures "in no way second to that now held by ovariotomy."

A novel method of recording the fetal movements by means of a gastrograph is described by Dr. Braxton Hicks, who also reports a case of extrauterine fetation about the seventh month of pregnancy, in which urgent symptoms necessitated abdominal section, the patient finally succumbing.

Dr. Graily Hewitt offers a practical contribution to the study of the history and treatment of uterine displacements and distortions, in the shape of a report on sixty-seven cases of this kind.

Some practical suggestions are contained in a paper by Dr. Wm. Stephenson, on rotatory action in using the forceps.

Dr. Wade reports a case of chorea in pregnancy, which was successfully treated by dilatation of the os uteri. A rare case of absence of the vagina, in which the uterus was distended by retained menstrual fluid, and in which an operation effectually relieved the patient, is narrated by Dr. Carter.

EDMUND C. WENDT.

DEPARTMENT OF DISEASES OF CHILDREN.

EDITED BY . . . GEORGE B. FOWLER, M.D.

ORIGINAL COMMUNICATIONS.

CASE OF TREPHINING OF STERNUM FOR OSTEOMYELITIS.

BY

MARY PUTNAM JACOBI, M.D.,
New York.

JOSEPH W., æt. 3½ years, was first brought to me in February, 1880, on account of a tumor of the thorax, which had first appeared in the preceding December. The tumor was smooth, hemispherical, situated at the junction of the third, fourth, and fifth ribs with the right side of the sternum, and seemed to only partially encroach on the space behind the latter bone. Its most prominent point projected about half an inch in front of the general level of the chest. The tumor was entirely indolent to pressure, and had never been the seat of spontaneous pain. The mother called the child "pigeon breasted," and had only lately become alarmed at the constantly progressive increase in the deformity. Over the entire region of the tumor, percussion sound was dull and respiration absent. There was no pulsation, thrill, or vascular murmur at the tumor; but the beating of the heart was heard very distinctly in the epigastrium, almost as much as at precordium.

On this occasion the diagnosis was reserved, although the probabilities seemed in favor of a tumor of some kind in the anterior mediastinum. The child's general health was extremely good, and, in the absence of any indication for action, a purely expectant treatment was adopted.

On the 15th of April, I re-examined the child, and found that the tumefaction had increased and also shifted toward the left, so that it now occupied entirely the sternal region of the thorax. It extended from the third rib to the seventh, and had now assumed a longitudinal shape instead of the hemispherical one at first presented. A small, soft swelling had appeared in the epigastrium, just below the xiphoid cartilage. The most prominent part of the swelling was abraded. It seemed to be connected with the mass behind the sternum, and suggested the pointing of an abscess. No fluctuation could be detected in the main tumor, which, as hitherto, remained quite free from pain. The child was beginning to grow pale and thin, and was ordered to take a lime emulsion of cod-liver oil.

On the 22d of April, a third soft tumefaction appeared at the internal extremity of the right third intercostal space, thus parallel to the upper extremity of the tumor. The child was feverish, excessively thirsty, and urinating excessively.

On the 29th, the swelling at the epigastrium was found to have ulcerated, and about a teaspoonful of pus had been discharged. The swelling, however, persisted. A probe passed through the superficial opening entered to the depth of an inch, and then could be moved freely about in all directions, but it could not be made to communicate with the sternal tumor. The tumefaction in the intercostal space had grown larger and more globular, but did not redden or show any sign of perforation. For the first time the child began to complain of pain "in his bone."

During the preceding week, also, the child had had two convulsive attacks, such as, according to the mother's account, had occurred at intervals during the entire illness. They always came on between eleven and twelve at night, during sleep, from which the child did not awaken. According to the mother's description (I never had an opportunity to witness one of these attacks myself), they would begin with the utterance of a "choking, unnatural cry, as if he could not draw breath." Then the belly, or the left side of it, would become excessively hard, "and as if without motion." This rigidity was succeeded by tonic convulsion of the limbs on both sides, the head fell back, while the child continued to groan; finally the attack terminated after clonic convulsions of the hands and feet. The mother was accustomed to dash cold water in the child's face, and rub his stomach with brandy. She thought the attack lasted about five minutes.

As far as could be concluded from this description, the attacks seemed to begin in a tetanic spasm of the diaphragm, with consequent arrest of inspiration, determining in its turn a general convulsion. It is probable that the "groaning," alleged by the mother to continue throughout the attack, really only marked its onset. The spasm of the diaphragm would be explained by irritation of the phrenic nerve in its course.

On the 15th of May, the ulceration of the tumor in the epigastrium had extended over a space about the size of a ten-cent piece. The child continued feverish, the rectal temperature in the morning, however, not rising above 100.

On the 16th, Dr. Daniel Stimson kindly saw she child with me in consultation. To better explore the fistulous tract opening in the epigastrium, ether was administered to the patient, and thus, though with a little difficulty, a probe could be passed from the epigastric opening for a depth of three inches to behind the xiphoid cartilage and sternum. It was necessary at first to incline the probe backwards, afterwards forwards, against the posterior surface of the sternum. It was felt to scrape against denuded bone at a point apparently just below the level of the third rib. The upper tumefaction was not, however, entered.

The diagnosis had long been settling in favor of a retrosternal abscess, dependent upon caries of the posterior table of the sternum, and was confirmed by the results of this exploration. It was presumed that a considerable amount of pus had become imprisoned in the anterior mediastinum, its exit being prevented by the narrow, tortuous tract of the fistula. It was decided to enlarge this tract, and to insert in it a drainage tube, in order to provide for the free discharge of pus.

It was evident that this pus existed in the triangular space behind the lower portion of the sternum, between the parietal pericardium behind and the cul-de-sac of each pleura on the sides; but it was also evident that no considerable accumulation of pus existed in this locality, certainly none sufficient to directly determine the bulging of the sternum. This must have been caused by softening of the spongy tissue of the bone, which then yielded to the pressure of the more solid parts above and below it, precisely as the softened body of a carious vertebra.

The first probing was followed by an immediate aggravation of all these symptoms. The pain became severe, and for the first time fever set in, the temperature rising to 103°. This temperature continued during the three days which intervened before the operation. At this Dr. Stimson most kindly consented to assist me. It was performed on the 19th of May. The child was etherized, and the soft fluctuating tumor at the upper part of the sternum first incised. About a teaspoonful of pus escaped. Careful probing of the cavity of the abscess then showed, however, that this did not communicate with the retrosternal space. It was not possible, as had been expected, to pass a drainage tube from the cavity of the abscess behind the sternum to the inferior fistulous opening. With great precautions I therefore enlarged the latter little by little, then widened the fistulous tract by the passage of blunt probes, and, finally, of a round (new) silver catheter, until space was made sufficient to admit a perforated rubber drainage tube one-quarter inch in diameter. This tube entered three inches. A tape was passed through an opening in the external extremity and tied round the body of the child, to retain the tube in place and prevent it from being drawn up behind the sternum during movements of inspiration.

During this operation very little pus escaped through the fistula, so little that the term "retro-sternal abscess" scarcely seemed to be appropriate. The diagnosis seemed to lie between: 1st, a simple exfoliative caries of the sternum; 2d, an epiphyseal osteomyelitis starting from the line of junction of the manubrium with the body of the sternum; 3d, an osteomyelitis excited by a limited tubercular deposit. Tubercle is far from rare in the spongy tissue of the sternum, indeed, according to Ranvier, is always present here in case of generalized tuberculosis. But in the absence of tubercle elsewhere it would be impossible to pronounce upon its existence in this locality.

In the operation for the insertion of the drainage tube all the instruments employed were carbolized, but neither the spray nor antiseptic dressings were used. A thick pledget of carbolized cotton wool was placed over the fistulous opening and over the upper abscess, and the whole held in place by a bandage. Salicylate of soda was given symptomatically for the fever. During the twenty-four hours following the operation, the restlessness of the child was extreme. In twenty-four hours, however, the temperature had fallen to normal, and coincidently the restlessness and complaints of discomfort in the chest diminished. In forty-eight hours the dressings were removed and an injection of two and a half per cent sol. carbolic acid made through the drainage tube. After this the child rapidly improved in tranquillity and spirits. An injection was made every day for a week, then every other day. The fluid entered well into the retrosternal cavity and reïssued, carrying a small amount of sanious oozing with it, and occasionally some pellets of cheesy pus. No spicula of bone came away at any time. The upper abscess rapidly healed. The child now resumed the mixture of cod-liver oil and phosphorus and seemed to recover his usual spirit and almost his accustomed playfulness and activity. It was found that whenever the washing out of the retrosternal cavity was delayed for more than two days, he became uneasy, feverish, and complained of pain "in his bone." Yet at no time was any marked accumulation of discharge found to have taken place in the cavity. The carbolized cotton covering the drainage tube would, however, be found more abundantly saturated with the discharge; occasionally some pellets of cheesy pus would be observed to block up the holes of the drainage tube.

This tube fell out two or three times in the course of the first six weeks that the child was under observation, expelled apparently by the pressure of the abundant granulations that sprang up in the course of the fistulous tract. On the 1st of July, I left the city and left the child in the care of my friend, Dr. Mary G. Wattles, who continued the carbolized injections three times a week. During the two months of my absence the blocking of the fistula by granulations continued; the tube was more frequently expelled, and its reintroduction became more and more painful. Finally, at Dr. Stimson's suggestion, laminaria tents were introduced into the fistula to expand it again. This operation was followed by an evident exacerbation of osteomyelitis, as indicated by fever, pain, and even redness of the skin covering the sternum. This occurred just before I again saw the child in the first week in September.

He was then in quite a miserable condition, being thin and pale, and his forehead contracted with an expression of constant suffering. A small ulcer on the cornea, first noticed at the end of June, persisted, but had not increased. From accidental circumstances this had received no treatment during the summer.

The aspect of the sternum had changed. It was much more directly bent upon itself, forming a marked angular projection which occupied the lower two-thirds of the bone. The mouth of the fistula was nearly closed by very sensitive granulations.

It seemed evident that the rarefying osteitis which, by softening the spongy tissue of the bone, had occasioned the first curvature, had increased so as to admit of still further compression and consequent extension of the curvature. The question arose whether any necrosed spiculæ of bone had separated and been unable to escape through the narrow and tortuous fistula. I decided that the only further chance of relief would be afforded by trephining the sternum at the point of greatest angular curvature, thus at once removing the (presumably) most diseased portion of bone; affording a free exit to any necrosed particles possibly lying in the cavity, and putting an end to the irritation caused by maintenance of the fistula. After a little consideration, Dr. Stimson and Dr. Wattles consented to this operation, and it was performed, with their assistance, on September 11th, at the Infirmary. On this occasion the Lister spray was used, with all the usual precautions. I made an incision down to the bone of about two inches in length, and after some scraping of its surface applied a trephine one-half inch in diameter at the point of greatest curvature. The bone was so soft that the instrument entered with little difficulty. Proceeding slowly and cautiously, I soon penetrated into a cavity whose depth, as measured from the surface of the chest, was just one inch. The pieces of bone removed by the trephine were not necrosed and several were healthy. But one piece, the size of a filbert, on the innermost aspect of the bone, was the seat of intense rarefying osteitis. I regret extremely that these pieces were not saved for microscopical examination to ascertain, if possible, the presence in them of tubercle. The opening made by the trephine admitted the little finger. Neither the finger nor the probe discovered any necrosed portions of bone, nor indeed any denuded portions except in the immediate vicinity of the artificial opening. A probe passed readily through the old fistula, across the bottom of the new opening, up to a point in the immediate vicinity of the cicatrix of the old superior abscess. The length of the probe thus entered was four inches.

The cavity was gently syringed out with carbolic acid solution, the fluid escaping freely through the fistula as well as above. The track of the fistula was scraped with the dull curette, removing many of the sensitive granulations, a pledget of carbolized cotton was placed in the cavity, protruding through the sternal opening, and upon this was laid the usual Lister dressing and bandage.

Upon recovery from the ether, the child complained but little of pain, and showed much less restlessness and discomfort than after the first operation. The temperature remained normal until 7 P.M. on the evening of September 12th, when it rose to 102°; 5 grs. of salicylate of soda were given every two hours; but by noon of September 13th, the temperature was still 102°; the child very restless, the respirations 44. The dressings were removed under the spray; a small amount of discharge found on the cotton, but none pent up in the cavity. The latter was gently syringed with 1½ per cent carb. sol. The operation seeming to cause no pain to the child. Cotton was replaced in the wound, and the Lister dressing reapplied.

Fifteen minutes afterwards the respirations were 56. Careful examination of the chest discovered nothing abnormal over the lungs or over the heart.

October 9th.—Tube fell out; opening very narrow; syringe out without reintroducing tube; touch exuberant granulations with nitrate silver; insert nothing in wound.

On 13th.—Granulations pale and compressed; little oozing from wound; repeat.

On 16th.—Granulating surface much retracted; compressed by narrow band of cicatrix. Pale, very little discharge; a drop of pus oozes from centre, probably from fistula. No probe; touch with nitrate.

October 20th.—Did not examine wound; child doing very well; reported no pain; little discharge. To-day add gr. iss. chloride calcium to phosph. and ol. morrhuæ.

From this date the improvement was uninterrupted; a minute fistula remained, just permeable to a fine probe, until March; but when the child was seen again, in April, the fistula had entirely closed. By this time the curvature of the sternum had greately increased, so as to constitute nearly a semi-circle. The general health of the child had become excellent.

The interest of this case lies, of course, not in the disease, but in the locality, on account of which a radical operation seemed exceptionally dangerous. It was necessary to trephine immediately over the pericardium, and the precise extent of the space intervening between the instrument and this membrane was unknown. It was certainly much less than would have been the case with a well-developed abscess of the anterior mediastinum. Again, it was uncertain to what extent the floor and sides of the retro-sternal space had become thickened during the morbid process. By the time the sternum really was trepanned, this thickening seemed to be considerable; but at the time of the first operation, it was undefined.

With the results of both operations before us, it may be asked whether the second, the trepanning, should not have been performed at once in May. The first reason for delaying it was the inexperience, not only of myself, but of Dr. Stimson in similar cases, leading us to prefer, at first, a tentative measure, apparently less severe. It was hoped, moreover, that an opportunity would be given for the spontaneous elimination of the fragment of necrosed bone, which was presumed to constitute the source of irritation. Failing this by the maintenance of the fistula, its posterior walls, covering vital organs, would acquire a protective thickening, in virtue of which removal of the anterior wall by trepannation would be more safely effected.

It seems probable that this reasoning was correct; but it is certain that the delay was unduly prolonged. Had it not been for my absence from the city, the trepanning would certainly have been performed at the end of June, thus saving the child two months of suffering.

The piece of bone removed from the sternum by the trephine was not necrosed, but the seat of an active osteo-myelitis. In a recently published memoir on this disease, by Lannelongue,[1] removal of the affected portion of bone by means of trephining is recommended as the "most simple, inoffensive, and effective" remedy. The author "can hardly imagine why it should have fallen into neglect." In discussing the subject, Lannelongue quotes an interesting case from Boeckel, published in 1870, where the application of a trephine to the left tibia, giving issue only to a flow of blood, immediately arrested the spread of a diffuse osteomyelitis. On the right tibia, first attacked, simple incisions were practised without effect. A month later, the trephine was applied to the same bone, and liberated abundance of pus.

"It is not necessary," says Lannelongue, "to defer the operation until a subperiosteal abscess be formed; the trephine is often the more efficacious the earlier it is applied."

Lannelongue's remarks are especially intended for the acute form of osteomyelitis, often called "malignant," or even "typhus of limbs." In such cases the operation is to be considered urgent, and undertaken as an heroic remedy to avert imminent danger of death. But if removal of the portion of bone first diseased will prevent the spread of the inflammation in the peracute process, much more may it be expected to do so in chronic cases. The danger, as in the method of gouging out carious portions of bone, is from the possibly irritating effect of the operation on the adjacent sound bone. But, as the operation of trephining is very much less severe than that of gouging, so such irritative reaction would be expected to be much less.

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[1] Osteomyelite, Paris, 1880.

The special interest of our case, however, lies less in the nature of the morbid process than in its seat, and in the question of applying to this locality a remedy so heroic, even if this has been recognized as desirable elsewhere. From the situation of the sternum, its close proximity to vital organs, the triple danger of opening the pleuræ, wounding the pericardium, or causing hemorrhage from the mammary artery, the attempt to remove a portion of its substance must be invested with a certain solemnity, and is liable to be approached with considerable reluctance. Koenig,[1] after stating that the operation has often been performed with success, nevertheless insists that it should only be done in "the rarest cases. So long as the symptoms are uncertain, no one would wish to incur the danger of opening the mediastinum and possibly the pleura."

Gunther,[2] on the other hand, gives a very favorable showing for the operation. He enumerates three indications, supporting each by a practical example:

1st. To liberate pus from the anterior mediastinum.

2d. To widen a spontaneous fistula.

3d. To remove a piece of necrosed bone, the result of caries.

It will be noticed that our case falls under no one of these indications. The amount of pus in the mediastinum was trifling; the fistula which existed was healed and not widened after the trephine, and the piece of bone removed was not necrosed, but in a state of chronic inflammation. The indication was precisely that laid down by Lannelongue, with the exception that the osteo-myelitis was chronic, tending towards the breaking down of the bone by caries, instead of acute with a tendency to death.

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[1] Bd. I., p. 633.

[2] Lehre von den blutigen Operationen, 1861.

Gunther gives the following table of cases of trephining of the sternum. The table is compiled from various sources, beginning with the famous case of Galen, so often quoted.

TABLE, THIRTY CASES: GUNTHER.

INDICATIONS.	CURED.	UNIMPROVED.	DEATH.	RESULT UNKNOWN.	TOTAL.
I. Superficial resection	3	....	....	....	3
II. Resection from the whole or almost the entire thickness of the bone (trepanning).					
1) For caries	8	1	1	2	12
2) For badly healed fracture	......	1	.....	....	1
3) For retro-sternal abscess	3	.....	.....	.....	3
4) To give freer outlet to pus	3	.....	.....	.....	3
5) For wounds	......	.....	1	.....	1
6) Indication unknown	3	.....	....	3	6
III. Resection of xiphoid process	1	.....	....	.....	1
Total	21	2	2	5	30

This table includes the nine cases related in the memoir of De la Martinière on the subject[1] (memoir written in 1784, but still quoted by Rollin[2] as the most important contribution to the subject). It was la Martinière who operated upon a soldier at the siege of Phillipsbourg, in 1734, on account of a radiated fracture of the middle portion of the sternum, caused by a gun-shot wound. During the operation the mammary artery was exposed, but not wounded. The author remarks that he "could not avoid feeling a special predilection for this patient," and personally attended to the dressings of his wound until his complete recovery.

Among the observations collected in this interesting memoir is one of a girl of twenty-two, who had suffered for two years from caries of the sternum. The operation liberated a large quantity of pus from the anterior mediastinum, and the patient recovered completely in two months.

Another case is quoted where a syphilitic caries destroyed such a large portion of the sternum as to expose the pericardium, and finally to destroy the attachments of two ribs on each side. Death ensued, and the author attributes this to neglect of the operation. In view of the cause, however, we may inquire whether medical treatment, which was also neglected, would not have been more efficacious.

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[1] Mem. Acad. Roy. Chirurgie, Vol. 12, 1784.

[2] Rollin et Duplay, Traité Elementaire de Pathol. Externe.

Among the cases quoted, with details, by Gunther, is that of Heyfelder, of Erlangen, who operated in 1852, without chloroform. The patient was a man of forty, with chronic caries of the sternum, resulting in a spontaneous transverse fracture. The bone was removed by the osteotome, chain-saw, and cutting-forceps.

Gunther operated by the trephine in an analogous case. For a long time the movements of the heart could be observed by means of the flow of pus.

Gunther's last case was in 1859. In this he was able to remove the carious portions without infringing the posterior table of the sternum. There was, however, abundant hemorrhage from the bone, followed by severe febrile reaction. The patient, however, recovered, and a year later the wound was found completely closed.

The cases of trephining of the sternum which are apt to be quoted over and over again[1] are those of some antiquity, and while the operation was still invested with a certain solemnity. The fact that few cases have been latterly recorded may simply imply that the operation has become sufficiently recognized to render special mention of it superfluous. Resection of the ribs has been performed so often that resection of the sternum may well cease to seem extraordinary. It remains true, however, according to the remark of Koenig, that the surgeon in the latter case must guard against the double possibility of perforating either the pleuræ or the pericardium. Recalling the hour-glass shape of the anterior mediastinum, it will be remembered that, while the pulmonary pleuræ separate from each other above to inclose the vestiges of the thymus gland, and separate much more widely below, where they are reflected upon the pericardium, at a point corresponding to the second piece of the sternum; these two layers of pleuræ are se contact with each other, leaving only a potential cavity. It would seem as if a trephine, applied at *this* point, must necessarily open the pleural cavity on each side of the chest. Nevertheless, to judge from the records of cases, it seems probable that the operation *has* been performed in this locality without the occurrence of any such accident. We may, perhaps, infer that the pleuræ had become thickened by false membranes, the product of an inflammation of contiguity.

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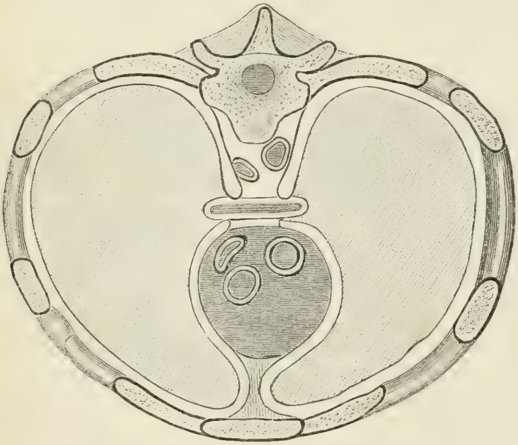
[1] Messrs. Velpeau and Richet each cite the most celebrated cases included in Gunther's table.

In our case, however, it was evident that no such inconvenience needed to be apprehended.



Cut from Follin, illustrating seat of operation.

The apex of the curvature formed by the diseased bone, and which was selected as the seat of the operation, corresponded to the triangular space existing anterior to the pericardium, and between the lungs, as they diverge to the right and left. The small portion of the pericardium here exposed, is covered by a double serous layer reflected from the mediastinum ; but as it is easy to convince one's self by dissection, this layer may be easily removed, either from the sternum in front or from the pericardium behind.

In osteitis of the inner table of the sternum, the anterior fold of serous membrane could harly fail to be thickened and adherent to the bone. Additional guarantee would, therefore, exist that the trephine, in reaching the posterior surface of the bone, should not penetrate the pericardium.

Much greater danger exists of wounding the mammary arteries. This has been done, and the hemorrhage arrested only with great difficulty. In our case such danger was reduced a minimum by the employment of a trephine whose diameter did not extend entirely across the sternum.

A curious detail of the case was the external abscess, which for so long occupied the extremity of the right second intercostal space. It is not unusual with sternal caries to find a post-sternal abscess opening in the supra-sternal fossa. Cases are also related of abscesses opening laterally, and these have been more frequent on the left than on the right side; but, as has been seen, the abscess in our case did not, at the time of the operation, communicate with the mediastinum nor even with the sternum. Is it to be supposed that a communication had at one time existed and subsequently become closed? Or could the abscess have been developed by irritation of contiguity, without continuity with the diseased bone? Or, finally, had this abscess developed in the track of lymphatic vessels engaged in carrying irritative material from the focus of inflammation? This latter seems the most probable explanation, when we consider that the lymphatic glands, through which pass the retro-sternal lymphatic vessels, are situated along the course of the internal mammary arteries. One of these glands would be situated exactly at the seat of development of the abscess, and we believe its engorgement to have been the starting-point of the latter.

We may ask whether the alleged greater frequency of an extra-sternal abscess on the right side be in any relation with the termination of the thoracic duct at this point, and the convergence to it of the retro-sternal lymphatics after their passage through the glands.

We have been unable to find any record of a case of trephining the sternum in a subject as young as little Joseph Witkoski—in fact, in no one below the epoch of adolescence. On this account, if on no other, we think our case worthy of commemoration.

CASE OF AN ENORMOUS CYSTIC TUMOR OF THE KIDNEY.

BY

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(With woodcut of the Pathological Histology.)

THE following case, under my care during the entire course of the disease, will be seen to present several remarkable features:

The patient, a frail, light-complexioned girl of about seven years, had enjoyed usually good health up to the middle of November, 1880. She was a tall, slender, active child, well cared for and well clothed, having all the comforts and many of the luxuries of life. On November 14th, the mother called at my office and said her daughter was not well; that she had some pain in the bowels, a coated tongue, and poor appetite. I saw the little patient in the afternoon, found her somewhat feverish, thirsty, with white coated tongue, and complaining of pain in the region of the umbilicus. Bowels were regular, or a little constipated, countenance rather pale and somewhat anxious, with a slightly bluish tinge about the mouth. The symptoms, though not marked, seemed to indicate intestinal irritation. The urine showed a whitish sediment on cooling, and on several previous occasions had deposited a reddish, sandy sediment. Occasional wandering pains were present in various parts of the body and limbs. Intestinal worms were presumed to be the cause, as her appetite had been variable for a few days, in addition to the symptoms now present. Suitable remedies were left for feverishness and lumbricoid worms, and on the next day the child was better. In two or three days she had, to all appearances, regained her usual health.

About a week later, a similar attack, attended by burning at the epigastrium, was promptly relieved by the same treatment. Three weeks later, on December 18th, a more severe indisposition occurred. Meanwhile the child had been in usual health, engaging in play with the other children with her accustomed vivacity. It is not certain that she had no attacks between these dates, but if so, the remedies left at the former attack were used. No worms had during this time been discovered, and as it was now cold, changeable weather, and the child had been out of doors playing in the snow, a "cold" seemed the most likely cause of the digestive disturbance. At this attack the pains assumed, at times, the form of intestinal cramps and colic, and were promptly relieved by ordinary remedies. Still one localized spot, very near the pyloric end of the stomach, was more complained of than any other point.

At the next attack, about a week later, the pains assumed a sharp, stitching, stinging character, with sudden exacerbations and remissions, at length becoming quite continuous for several hours. The urine was chemically examined and found normal, or perhaps a little too strongly acid. Uric acid crystals were freely deposited from one specimen examined. After the second day of this attack, a swelling suddenly appeared in the right hypochondriac region. It was not more than twelve hours from the discovery before it had become perceptible even to the eye.

I have been thus minute in detailing the initial symptoms to show that diagnosis had been up to this point extremely difficult. The urine, as has been said, had been repeatedly examined by chemicals, but no markedly abnormal change could be discovered.

Upon the advent of the swelling mentioned above, a council was requested by myself, and a competent practitioner of excellent observation was asked to see and diagnose the case. This physician found a tumor in the right hypochondrium, extending two or three inches below the free border of the ribs. It was smooth and perfectly regular in its outline, seeming both in shape and contour to exactly correspond to the liver. Flatness on percussion extended continuously from the upper border of the liver to the lower border of the tumor. Temperature, 102°; pulse, 120–140; small, tense, short; tongue coated, appetite gone, and at the height of the paroxysms of pain, vomiting of bilious matter and food occurred. There was great tenderness over the whole region of the tumor, and pain extending from the right hypochondrium to the subscapular and infrascapular region. Hepatitis was the diagnosis independently made by my counsel, and had been announced to the family as my own diagnosis on the first advent of the tumor. So sure was my friend of its correctness that he remarked: "I could be hardly more certain if I had seen the liver and held it in my hand."

Still there was an entire absence of jaundice, as there had been during the whole previous history. The abdomen now measured just above the crest of the pelvis twenty-one inches; in the umbilical region twenty-four inches; in the mammary region the circumference was twenty-one inches. Chances were discussed as to whether her strength could be supported sufficient to carry her through resolution by absorption or suppuration, as the case might be, and the most careful means were employed to that end.

In about a week after this, at the end of another paroxysm, the swelling suddenly decreased in about twelve hours. Circumferential measurements were not taken, but the lessened size seemed too apparent to admit of mistake. Up to this point in the progress of the case, it had not been noticed that the paroxysms had been recurring at intervals of from six to eight days. But on looking over the history it was found that the first attack was on the 14th of November; the next on the 23d of the same month; the next marked one was three weeks later, on the 18th of December, then on the 25th, then about the 1st of June, '81, then the 6th, at which time the first swelling was observed. On the 11th counsel was called, and on the 18th a period of marked improvement began, lasting about a week.

I have spoken of paroxysms, and such they were. The pain and all aggravation of unfavorable symptoms during each attack would subside after from twenty-four to thirty-six hours, the patient remaining comfortable, partaking of food and sleeping very fairly until the next period of exacerbation.

The sharp spasmodic character of the pain favored biliary calculi, but this without jaundice is rare (Niemeyer, Vol. I., p. 703). Nevertheless, I was tempted to diagnose hepatic colic, from the passage of calculi, and a close watch was kept for these deposits, but entirely without success.

Multiple hydatids of the liver, with uniform enlargement, is also rare, and yet, but for the pain, would have been favored as a probable cause.

Hepatitis without jaundice is rare, but does occur (Niemeyer, Vol. I., p. 641).

At no time had there been chills or pyemic sweating; hence, abscess of the liver had to be excluded.

Cancer of the liver was hardly to be thought of in this connection, for the periods between the attacks were wholly free from pain, except such as could be referred to localized peritonitis. Besides, the growth was too rapid.

In from six to eighteen hours, during the paroxysms, the size of the tumor would suddenly and markedly increase, after which the temperature would drop to nearly normal, the pulse decrease in frequency and tension, the appetite return, one or two greenish, bilious-looking stools pass, and then the normal functions of the bowels be resumed.

By the last of January, the enlargement had become so great as to prevent all attempts at helping herself, except to change position slightly in bed. The circumference in the umbilical region was now twenty-seven inches, and at each paroxysm the size increased. The tumor pushed up under the ribs on the right side, and extended downward to the crest of the pelvis. Percussion showed perfect flatness; palpation only a suggestion of deep fluctuation, and a smooth, regular, uniform outline, with firm, doughy, boggy consistency, while its great tenderness precluded a thorough, manual examination.

Other counsel was summoned, and non-malignant tumor of the liver diagnosed. Fluctuation being very indistinct, paracentesis was deferred until the tension became so great, it could be no longer avoided. A small exploring needle was first introduced at the point of most evident fluctuation, on the right side, on a line with the umbilicus. From six to eight ounces of viscid, transparent, yellowish fluid was withdrawn, having a specific gravity of 10.42, slightly alkaline reaction, and almost wholly coagulable with nitric acid or by heat. Some relief was experienced from removal of the tension, for by this time the right lung had been considerably encroached upon. The heart also was suffering from a similar cause, and the skin of the abdomen had become painfully tense. Actual measurement showed the umbilical circumference to be twenty-nine inches; the axillary, twenty-one; the brim of the pelvis, twenty-two.

The fluid was examined under moderate power, and, although no tentacles of ecchinococcus could be found, my own diagnosis inclined to multiple hydatids of the liver, with uniform enlargement—a rare thing, indeed, but said to occur. Minute flocculi floating in the fluid, and looking like half-organized lymph, were present, and to these had been attributed the cessation of the flow through the small needle used; for upon its withdrawal fluid continued to ooze from the wound for several hours. The operation was repeated again, after a few days, with the same result; namely, the withdrawal of only a small amount of fluid, though a powerful air-pump was attached.

At a subsequent consultation, it was agreed to try to remove the fluid with a larger needle, since the patient herself desired it. The size of the abdomen had now become very great: in the umbilical region, thirty-three inches; in the axillary, twenty-one; at the crest of the pelvis, twenty-four inches. Chloroform was administered only to the point of partial narcosis, and an exploring needle, fully five inches long, was plunged into the tumor to the depth of at least four inches. The fluid was about the consistency of good mucilage, and not unlike it in color, but every now and then tinged with blood, which came in streaks, or, at times, almost pure. After a little, the flow ceased entirely, and the air-pump failed to re-establish it. Upon withdrawing the needle an inch or so, fluid again poured out. By moving the point in various directions, from one to three ounces at a time would discharge; then the flow would again cease, and, finally, it would stop altogether. Altogether, at this second operation, about three pints had been evacuated. The tension was lessened, and the patient made more comfortable; but this relief was only temporary. A large clot formed in the bottom of the vessel containing the fluid, showing fresh blood had been removed, which, together with the interrupted flow and unequal color, led to a diagnosis of multiple cystic tumor, with vascular walls to the cysts.

The little patient had been gradually sinking all this time. The weekly exacerbations continued, and at each the tumor greatly increased in size. Appetite was for the most part very fair; the evacuations of the bowels, though somewhat irregular, were nearly natural; the urine seemed, as to quantity, frequency, and special characteristics, as nearly normal as could be expected. Chemicals and the urinometer detected nothing to excite suspicion of the kidneys. Only during the last week or ten days did dropsy of the lower extremities and, finally, of the face, set in. Death occurred on the 3d of May, 1881, between five and six months after the first apparent deviation from usual health, and about four months from the first appearance of any enlargement or tumor.

Post mortem showed the circumference of the relative parts about the same as last given. The muscles of the arms and chest were completely atrophied, the face was free from edema, but the lower limbs were enlarged to about natural size. On the right side, the hypochondrium and the umbilical region were greatly distended. The left side was but little, if any, enlarged. The back was wholly free from bed-sores, but this immunity had been purchased at the expense of tireless watching and nursing. The application alternately of hot and cold sponges to the tender spots as they appeared, had prevented these usual complications incident upon those compelled to lie in one position for many consecutive weeks.

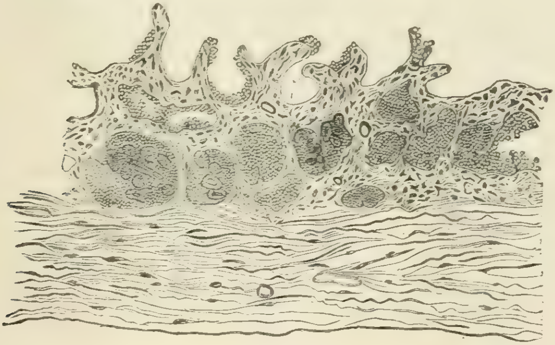
On section, the abdominal walls were found very thin and more or less adherent by their peritoneal surface to the smooth, regular surface of the tumor. When fully exposed, a large oval tumor was found extending from the left iliac fossa, which it completely filled, on an oblique line to the left of the umbilicus, upward in the right hypochondrium, as far as the third rib, and in a deeply curved line from the crest of the pelvis on the right side to the right infra-axillary space. All the abdominal viscera had been displaced entirely to the left of the spine. The liver that thus far had borne all the blame lay bodily beneath the heart, apparently normal in size and shape, but firmly adherent to the tumor. The head of the colon was in the left hypogastric region, the ascending part being folded upon itself, and, together with the transverse portion, lay in the left umbilical and hypochondriac region. On removal, the tumor was found to be attached by a set of vessels, in the aggregate about the diameter of a lead pencil, to the site of the right kidney. The liver was firmly adherent to the surface of the tumor; so firmly, that by the touch alone one could not determine the line of demarcation between the two. But the gall-bladder, the ducts, vessels, and lobes of the liver were all normal in size and in every other particular, and the whole was removed, leaving only a stained spot to mark its former site. The stomach was to the left of the spine, lying against the ribs, and atrophied to such a degree as to seem little more than an enlargement of the esophagus. The small intestines were normal in appearance, but lay wholly to the left of the spine. The mesentery was absent except as a filmy web, with three or four white, flattish bodies, from the size of a small chestnut to a small pea, in the meshes of the mesocolon. This last part was more vascular than the rest of the mesentery. The little masses crumbled beneath the fingers, and seemed filled with a milky pus-like substance. The descending part of the colon for fully twelve inches was so atrophied and changed as to resemble an umbilical cord more than anything else. A small amount of soft fecal matter was in the first part of the colon, all the rest of the intestinal canal being empty. The left kidney was normal in every respect, as were the bladder, the ovaries, and uterus. The tumor was less adherent in the pelvic cavity than at all other points. The right kidney could not be found in the abdominal cavity, nor any trace of an omentum. The right lung was compressed and hepatized for fully two-thirds of its extent. The heart was displaced fully its size upward and backward, the apex pointing to the front chest-walls, the base to the left subscapular region. It seemed normal in size and shape. The lower lobe of the left lung was also hepatized for two or three inches by compression.

The removed tumor was about a foot in length, ten to eleven inches wide, nine to ten inches deep; it was oval, smooth, with a firm white capsule; ruptured in removal, however, at two points, and here partially broken down. These points were the anterior aspect of the portion in the left iliac fossa and the right umbilical region, where the last operation had been performed. Notwithstanding these ruptures, the shape was maintained after removal, and the brownish watery fluid that oozed out reduced the size of the tumor only a very little. The weight of the whole mass together with the adherent liver and escaped fluid was twenty-seven pounds and four ounces. The weight exclusive of the liver was estimated at twenty-five pounds. The liquid measure of the whole was between twenty-three and twenty-four pints. A crucial section through the entire substance of the tumor showed numerous cysts, from the capacity of several ounces to only a fraction of a drachm. The fractional parts preserved their outline notwithstanding these free divisions of the substance of the tumor, showing the cysts had no communication with each other. The walls of the cysts were highly vascular and of a reddish, dark, flesh color. At the points where most easily broken down, a mass of pus-like substance infiltrated the walls, and oozed out to mingle with the discharged fluid. This pus-like substance resembled tissues in a state of fatty degeneration; but some of it placed under the microscope by my friend, Dr. Chapin, of Glens Falls, N. Y., showed both rounded and irregular cells filled with granular matter, and in some cases with nuclei and nucleoli.

On the posterior surface of the tumor, where the adherent vessels were attached, was found half of the right kidney, its calyces filled with a whitish substance like that in the little bodies found in the mesentery of the colon, and in the broken-down part of the tumor. The ureter was not traced to the bladder to see whether it was pervious or not, but was presumed to be so, as nothing abnormal could be seen with the naked eye. It is probable that a microscope would have detected this same whitish substance in the urine.

Portions of the unaltered part of the kidney and of various parts of the tumor, such as might be regarded as typical, were sent to several professional pathologists. One of these, Dr. T. Mitchell Prudden, of New York, very kindly gave the specimens his careful attention, and wrote out for me the following report, which I very gladly insert, together with a drawing by himself.

Dr. Prudden's report: "The walls of the cysts, which, in all the fragments sent me, have essentially the same structure, consist of a firm, dense layer of fibrillar connective tissue of varying thickness, containing in most parts comparatively few cells. Inside of this, and lining the cyst cavities, is a complex layer of tissue also of varying thickness, and much looser in texture than the outer connective tissue layer.



"The inner layer consists, in its deeper portions, of numerous trabeculæ or septa inclosing irregular cavities of varying size. The septa are formed of loose, very cellular connective tissue of the type of embryonal tissues, while the cavities are completely or incompletely filled, either with densely packed larger and smaller polyhedral cells, or with irregular tubular structures which, in some places, are closely packed together, in others separated by very narrow bands of the septa tissue or by polyhedral cells. These tubular structures seem to consist, as seen in transverse sections, simply of a single layer of cuboidal or polyhedral cells, and some of them have a distinct lumen, others not.

"On the inner surface of the lining membrane are numerous irregular villous projections formed of the same tissue as the septa beneath, and these are covered by several layers of polyhedral cells similar to those contained in above described cavities. In most parts of the specimens, when they came into my hands, the villi were denuded of the covering cells towards their ends. In some parts the cyst-walls contained considerable collections of fat-cells: in others they were quite thin and of almost cartilaginous hardness. The kidney itself showed the usual lesions of compression, and there was everywhere an increase of the interstitial connective tissue. Some of the calyces were crowded with densely packed masses of elongated epithelial cells. In the specimens which I had the opportunity to examine, there was in all cases a distinct layer of connective tissue between the parenchyma of the kidney and the cyst-walls.

"The tumor would seem to belong to the class of the *cyst* adenomata, although both in structure and position it is decidedly atypical."

Specimens were sent to Dr. Hailes, of Albany, and his reply is: "Your case may have been one of cystic kidney or cystic degeneration of the kidney, but would presume that it was sarcoma or cysto-sarcoma. The case in the Strassburg Hospital was very similar, there being an enormous enlargement of the kidney, measuring, I should judge, about the proportions of your specimen, and containing many cysts."

This case, mentioned by Dr. Hailes, is the only one of a similar character of which I have been able to obtain any trace.

THUMB SUCKING.

BY

D. H. GOODWILLIE, M.D., D.D.S.,

New York.

THE following case will serve to illustrate this bad habit and its treatment.

Florina J., of Augusta, Ga., aged four and a half years, was brought to me by her parents in April, 1877, for treatment of nasal catarrh and a deformity of the nose.

On making inquiry of the mother as to the habits and care of her child, she acknowledged her ignorance and referred me to the colored nurse.

This child was pale and anemic, tissues soft, eyes listless, running at the nose, constipated, cross and impatient. Arms and legs bare, and no flannel on the body, while the weather was quite cold.

A good portion of time, during sleeping hours and often during the day, its left thumb was in its mouth.

It went to sleep sucking its thumb, and often in the night would wake up and continue this bad habit.

When the thumb was in the mouth the index finger was brought over the bridge of the nose, pressing it over to the right, while the middle finger bore down upon the cartilaginous portion of the nose.

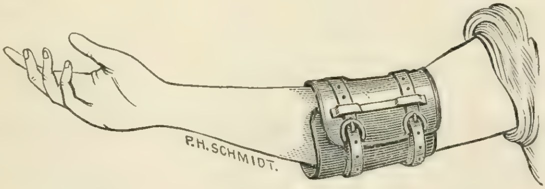
When the process of sucking was going on, pressure was brought to bear on the superior incisor teeth by the thumb, and, at the same time, the fingers on the nose pressed it down and to a certain extent prevented respiration through the nose.

The incisor teeth were forced outward and malformed the anterior part of the mouth. The upper lip was not so well developed in proportion as the under one, and had a pouting appearance. Left thumb reduced in size as compared with the right. Under an anesthetic the nasal cavity was thoroughly examined.

There was found considerable stenosis from general thickening of the tissues and a deviation of the nasal septum into the right nostril. While under the anesthetic I took a cast of the parts which distinctly shows that the bridge is pushed over to the right side, the cartilaginous portion flattened, the nostrils deformed and nearly filled with dried mucus. There is, therefore, very little room for respiration through the nose.

This story only serves to show what is too frequently the case, that, through bad management and defective alimentation, children are brought up in a state of physical starvation, though they may be living in the midst of affluence.

The parents desiring to leave the child in my care, I first procured a nurse, a graduate of one of our training schools, to take charge of it.



Treatment.—To prevent the thumb sucking, I made use of the same means that I employ in cases of staphylorrhaphy to prevent the hands coming to the mouth. This consists in binding around the elbows pads of thick leather to be held in place by two leather straps, one above and the other below the elbow.

The pads were adjusted after the child had fallen asleep, as follows: fasten the upper strap so that it will not pass down over the elbow, but keep its place. Let the lower strap be loose enough to allow some motion at the elbow joint, but not sufficient to *permit* the hand to reach the mouth.

The nurse was directed to sponge the child's body night and morning with a small quantity of salt and water to which was added a little bay rum, rub dry, and dress as soon as possible.

Flannels to be worn next the skin.

Food consisted largely of milk, with well cooked oat-meal or crushed wheat, and a small quantity of meat. Food, rest, and exercise to be taken regularly every day.

Local treatment for the catarrhal trouble consisted in cleansing the nasal cavity by means of the douche, and blowing in powders afterwards, to coat the whole internal surface of the nose.

The nurse was instructed to see that the child closed its mouth and breathed through the nose. At night she wore a bandage for that purpose.

Respiration through the nose became normal, her body firm, and her cheeks rosy. She was sent home to her parents the picture of health.

Thumb sucking is more disastrous to the health of the child than sucking the other fingers, for the thumb once in the mouth it more readily remains during sleep.

It interferes with the child's proper rest, which should be continuous and undisturbed, and so becomes a source of nervous irritation and exhaustion.

The thumb in the mouth interferes with natural respiration through the nose, and causes pressure upon that and contiguous parts whereby abnormal conditions arise.

It malforms the anterior part of the mouth, and often interferes with proper mastication.

ABSTRACT OF THE TRANSACTIONS OF THE

INTERNATIONAL MEDICAL CONGRESS.

SECTION ON DISEASES OF CHILDREN.

LONDON, AUGUST, 1881.

SPINE DEFORMITY AND SAYRE'S METHOD.

By DR. A. M. DA CUNHA BELLEM (Lisbon).—The author accepts almost to the full the principles on which Sayre advocates his especial method of treating spinal deformity. He thinks, however, that neither the pelvis nor the shoulder affords a fixed point for securing immobility of the spine.

In hot countries the bandage must be changed at least once a month. One of its disadvantages is that it interferes with sea-bathing and also with general cleanliness.

The author does not approve of the "jury-mast;" it renders the patients sad, even if they do not actually resist its application. Anesthesia ought never to be attempted. Sixth months do not always suffice to restore a diseased spine to its natural condition.

THE TREATMENT OF SPINAL CURVATURE, WITH SPECIAL REFERENCE TO SAYRE'S METHOD.

By C. H. Golding-Bird, B.A., M.B., F.R.C.S.E., Assistant Surgeon to Guy's Hospital.—Of the four deforming defections of the bones, including the spinal column, only three are found in children, viz., caries, rachitis, and "general curvature." The fourth, osteomalacia, does not now concern us.

These diseases being familiar to all, attention will only be drawn to their treatment as affecting the spinal column.

This fundamental fact must first be admitted, that these affections are the same whether in the spine or other bones; therefore, the essential principles of treatment are identical in both cases, varying only with the accident of position.

Had the same attention been given to the natural history and accompaniments of these diseases, as has for ages been given to their resultant deformities, such a complete revolution in the treatment of spinal cases as that introduced by Professor Sayre would hardly have found place.

Therapeutically, spinal diseases (in children) form two classes:

A. Inflammatory—Caries, or "Pott's disease."

B. Non-inflammatory— { Rachitis.
{ "General Curvature."

Caries (as in the tarsus), being inflammatory, requires absolute rest, immobility, relief from pressure, free drainage of pus where formed. *Rachitis* and "*general curvature*" (as in curved tibiæ and some flat feet) require temporary support to the weakened tissues and improvement of muscular tone.

All require suitable medicinal treatment. Sayre's method, as applied to spinal cases, fulfils all these requirements. I do not say the "jacket," but "method," as the former is but a part of the whole treatment.

The jacket of plaster of Paris, closely applied during extension, either vertical or horizontal (as preferred by some), gives the necessary "physiological rest" to an inflamed spine; while to both this and the non-inflamed suitable relief from downward pressure, thus maintaining whatever of straightness was gained by the extension. This it does by being a solid investing carapace, that will not yield the necessary lateral space, required as compensatory, for a diminished height on ceasing the extension; and not by any pressure upwards or downwards, or from side to side, like the old pieces of "spinal" mechanism, which only gave a very general sort of support. Since obviously the full limit of extension reached cannot be maintained by the jacket, it is requisite in "general curvature" (rachitic children are usually too young) daily to practise Sayre's auto-suspension from the head, so as to periodically open up the spine to its greatest extent, and exercise the weakened dorsal muscles. Early cases of "general curvature" are thus cured even without the jacket; and children take very readily to the exercise.

Thus, by making the support to the spine an integral part of the patient, he can exercise out of doors as before, and that with ease and comfort. The reclining board is no more required. If the jacket be cut up or be made of such material as felt, it is not nearly so efficient; it ceases also to maintain the chest in the position of full inspiration calculated to give most play to the thoracic organs.

In *caries*, rest is the principal end; hence, the jacket suffices. In "*general curvature*" and *rachitis*, extension and support, and not rest, are paramount; hence (save in the very young), the daily exercise is just as important as the jacket. In early and in moderate cases of "general curvature" cure may be confidently expected; the reason that often only slight amelioration is given to more advanced cases is due to defective pathology, and, therefore, medicinal treatment, rather than to the mechanical means being inefficient.

Thus regarding spinal deformities from a wide stand-point, they cease to have a special character, and to require a special department in surgery. The universal adoption of Sayre's principles in this country speaks to its efficiency more than individual experience could do.

ON SOME OF THE ABUSES OF THE JACKET TREATMENT OF SPINAL DISEASE.

By WALTER PYE, F.R.C.S.—The writer, while acknowledging fully the debt European surgery owes to Dr. Sayre for the able advocacy of his treatment, and granting that it is due to his exertions that in England it has come into such general use, considers that in many cases the jacket is hastily and needlessly applied, and that its employment is often actively harmful.

He divides the cases in which the jacket treatment is abused into two classes:—

A.—Those due to a wrong selection of cases.

B.—Those due to wrong methods of application of the jacket.

In Class A the following are given as improper instances:—

1.—*Simple Ricketty Spines*, often mistaken for cases of commencing caries.

2.—*Cases of Simple Lateral Curvature*, in which the disease is perpetuated by the use of rigid support.

3.—*Certain Cases of True Spinal Caries.* In infants, during the early progress of the disease, the older plan of rest and horizontal position succeeds better than does any attempt to immobilize the spinal column, and is free from the risk of preventing due development of the trunk; but the jacket may be used from the first in older children, with or without confinement to bed.

4.—Cases in which the lungs or heart are affected, in addition to the affection of the spine.

5.—Cases in which the carious spine is associated with any high degree of paralysis, incontinence of urine, etc.

In Class B the following are the chief instances of misapplication of jackets:—

1.—*Undue Heaviness*, many jackets being far too thick and strong.

2.—*Use of the Swing.*—This apparatus is considered to be, for children, useless, if not harmful, the object of extension being to allow the body to hang as straight as it may, while avoiding all risks of disturbing any adhesions between consolidating vertebræ, and to bring the chest-walls into a condition of extreme inspiration. It is held that these objects are best attained by holding the child by the arms, with the feet on the floor, or by the use of an inclined plane.

3.—*Bad Fitting and Bad Shaping of the Jacket.*—More especially neglect of the inspiratory position of chest-walls, insufficient hold of the jacket on the pelvis, and inaccurate fitting to the spinal curve or angle.

THE TREATMENT OF SPINAL CURVATURE, WITH SPECIAL REFERENCE TO SAYRE'S METHOD.

By Henry F. Baker, F.R.C.S. Ed.—The author divides the subject into the following parts:—

1. The suitability of this form of treatment in cases of angular curvature.
2. At what stage in the treatment of the curvature it should be made use of.
3. Its suitability in cases of lateral curvature.
4. Whether the whole method of treatment should be carried out, or only a part.

In the first place, with regard to angular curvature, the author considers that in the acute stage of the disease, extension is attended with danger; and that in the more advanced cases, when anchylosis has taken place, it has no effect at all on the deformity, and that it should never be practised in these cases.

In reference to the use of the plaster jacket, in cases of angular curvature, he is of opinion that it does not give the required *rest* to the spine, and that it is liable to constrict injuriously the chests of growing children, and that a state of recumbency is absolutely necessary to prevent the deformity increasing in the first stage of the disease. In a very limited number of cases, when the disease has been arrested and other forms of support cannot be obtained, it is undoubtedly of use.

In cases of lateral and other curvatures of the spine which are not accompanied by diseased bone, Mr. Baker is of opinion that suspension in the way suggested by Dr. Sayre is a useful addition to other modes of treatment, but that in those cases in which some form of support is absolutely necessary, the plaster jacket is very inferior to those made of steel, which can be adjusted at any time by the surgeon attending the patient.

ON THE PATHOLOGY AND TREATMENT OF GENU VALGUM.

By HENRY F. BAKER, F.R.C.S. Ed.—The term genu valgum should be restricted to that variety of knock-knee in which the deformity takes place at the joint itself, and which is not caused by any curvature of bone. The great question to be decided is whether these cases can be cured by gradual stretching by means of splints or instruments, with or without tenotomy or not; and, if they can, a severe operation, causing a compound fracture of bone, whether the knee-joint be implicated or not, is an unjustifiable proceeding. From the results in upwards of 700 cases of genu valgum seen by the author during his residence at the Royal Orthopædic Hospital, which were treated by the simple and safe method of stretching without any division of bone, he is convinced that almost all cases are amenable to this mode of treatment, if reasonable care and patience be exercised, and if the patients are kept almost entirely from standing or walking.

In the great majority of cases that come under the notice of the surgeon, this deformity is not of a severe nature; and on the knees being placed in the extended position and allowed to touch each other, the distance between the inner malleoli will be found not to exceed three or four inches. When this is the case, all that is required for the cure of the deformity is the application of wooden outside splints, extending from the hips to rather below the feet, which have straps and buckles attached to them, by means of which the knee-joints can be gradually drawn towards the splints.

In those cases which are rather more severe, with from four to seven inches between the malleoli, a special instrument should be prepared and made in such a way that it shall keep the knee in the *extended* position, and prevent the leg *rotating*, at the same time that, by its means, the knee-joint can be acted upon in the *lateral* direction with sufficient force to gradually overcome the deformity.

After a case of genu valgum has been quite cured, some support must be given to the joint for some months, or a relapse is likely to take place; but, on the other hand, if this treatment is carried out with reasonable care, patients with this deformity can be perfectly cured, and the knee-joint becomes perfectly strong.

ON THE EXISTENCE OF TWO DISTINCT FORMS OF ERUPTIVE FEVER, USUALLY INCLUDED UNDER THE HEAD OF MEASLES, AND THE RELATION TO THEM OF SO-CALLED RUBEOLA OR RÖTHELN.

By W. B. CHEADLE, M.D., F.R.C.P.—That one attack of a contagious exanthem confers upon the individual who experiences it immunity from any further attack of the same disease is a rule which has been found to hold good with regard to measles, as generally as it does in the case of scarlatina or small-pox.

Yet in two recent epidemics, both of them of severe and pronounced type, which followed one another in the same district within a year, it was found that the individuals who suffered in the first epidemic obtained no immunity from the second; and, further, that no previous attacks whatever of ordinary measles exercised any protective power against the second epidemic. Of thirty cases of this second epidemic, in which absolutely reliable histories could be obtained, twenty-two of the patients had had measles before, and ten of these under the author's personal observation, within the year.

Certain deviations from the common type, such as a shorter period of incubation, severe laryngeal symptoms, and other special features, taken together with the fact that previous attacks of ordinary measles conferred no protection, prove the disease of the second epidemic to be an essentially distinct exanthem. The question then arises whether it was a new and unrecognized form of eruptive fever, or the only other known form of measles, rötheln. The exceptionally severe, and even malignant, character of the disease at the outset would seem to negative the idea of rötheln, which is always described as a disease of an invariably mild type. But, after weighing all the facts, the conclusion is arrived at that the disease was rötheln, which prevails not only in the slight form which is acknowledged, but in a severe and malignant form also, hitherto not recognized as rötheln, but erroneously described as an exceptionally severe variety of common measles.

ON THE REAL POSITION OF RÖTHELN, RUBEOLA, OR "GERMAN MEASLES."

By Wm. Squire, M.D., F.R.C.S.—The author gives a short historical survey of the literature of this disease, and shows that it was known before it received a distinctive name.

The disease in his opinion has but a superficial resemblance to scarlet fever, but has close relations to measles in several points. But it is self-protective, is as distinct from measles as varicella is from variola, and possesses all the marks of a specific disease. It is contagious; it runs a definite course; it occurs but once in the same person.

ON RÖTHELN OR GERMAN MEASLES.

By Dr. Kassowitz.—1.—In the epidemics of rötheln which have come under my observation, I have never noticed the affection passing into true measles.

2.—The resemblance to measles is, nevertheless, sometimes so marked, both as regards the eruption and the associated phenomena, that, in any single case, the distinction from the milder form of measles, which runs a rapid course, is rendered extremely difficult, and, in such circumstances, can generally only be made by having regard to other cases in the same house and family.

3.—If this affection has any special relationship to any other acute exanthem, it is to measles, not to scarlet fever, that it is allied.

CONTRIBUTION TO THE STUDY OF RÖTHELN.

By J. LEWIS SMITH, M.D. (New York).—In this paper the author draws the conclusion from a study of a large number of cases, mainly occurring in two epidemics, observed by himself, that rötheln is a distinct specific disorder.

It is an exanthematic fever, mildly contagious. It resembles varicella in general mildness of symptoms, in the absence of dangerous complications, or sequelæ, and in the uniformly favorable prognosis; while its symptoms and history show a resemblance to measles and scarlet fever.

Its incubative period varies from seven, or perhaps fewer, to twenty-one days.

Rötheln requires no treatment.

THE REAL POSITION OF RÖTHELN OR GERMAN MEASLES.

By G. E. SHUTTLEWORTH, M.D. (Lancaster).—In this paper the conclusion is arrived at that the disease called German measles has a distinct character of its own, and does not afford protection from measles or scarlatina; and that, whilst certain cases have more of the characters of measles, and others more of the characters of scarlatina, yet the points of difference are always well marked.

These conclusions are based on an analysis of thirty-one cases of rötheln, some of which had also been the subjects of the other diseases.

ON THE NATURE OF THE SO-CALLED SURGICAL SCARLET FEVER.

By HOWARD MARSH.—General attention was first directed by Sir James Paget, in 1864, to the peculiar liability of patients to be attacked with scarlet fever after operations. The fact has been confirmed by subsequent observations. The present paper contains a digest of the evidence bearing on the subject afforded by the Hospital for Sick Children, and by cases collected elsewhere; and the following points are relied on to prove that, although instances are not rare in which eruptions unconnected with, though somewhat like, scarlet fever are seen after operation, many of the cases are true scarlet fever.

1. The frequency of the cases at the Children's Hospital when scarlet fever was treated under the same roof with surgical cases; and the rarity of cases at the present time when scarlet fever is admitted into a separate building.

That, though when they are attacked, patients are placed in the fever ward they suffer no further contagion.

That, though many cases are imperfectly marked, some are severe and even fatal, and fully typical of scarlet fever.

That the cases are more frequent during epidemics of scarlet fever than at other periods.

That cases have occurred in which, on very clear evidence as to the manner of infection, typical scarlet fever has been developed a very few hours after an operation had been performed.

Considering the disease to be true, though in many instances modified, scarlet fever, the writer proceeds to examine the general question as to the manner in which scarlet fever and other specific diseases are liable to be modified by the circumstances under which they are developed. Reference is incidentally made to the point that scarlet fever appears to stand alone in its tendency to attack patients directly after operations.

HEREDITARY SYPHILIS IS THE CONSTANT CAUSE OF RICKETS.

By M. Parrot (Paris).—Accumulation of proofs in favor of the frequency of hereditary syphilis.

Active Syphilis.	Skin eruptions. Desquamative syphilitic affection of the tongue.
Past Syphilis.	Cicatrices. Teeth.

If we study the skeleton in these conditions, we find changes in bone in the great majority of cases (98 per cent) in common with one or more of the preceding manifestations of syphilis.

There are three kinds of these lesions of bone.

They correspond to the different ages of the individuals.

They may succeed each other, or occur together in the same individual, or show themselves in differet subjects.

These lesions are as follows, in chronological order:

	Epiphysis.	*Diaphysis.*	*Consistence.*
1.	Chondrocalcareous.	Osteophytes (hard).	Hard.
2.	Gelatiniform.	Osteophytes (hard).	Moderate.
3.	Chondrospongoide.	Osteophytes (spongy).	Soft.

The third kind (chondrospongoide) is identical with the bone affection, studied till now under the name of rickets.

When the three kinds succeed each other in the same subject, the insensible transition of one into the other is established.

Osteomalacia is not rickets.

The causes which have been considered to be those of rickets can only bring on osteomalacia.

Such alleged causes are of commonplace occurrence, and inconsistent with each other.

Insufficient nourishment is of no importance as a cause.

Very wasted and cachectic children are not rickety, if they are not syphilitic.

On the other hand, very fat and fine children may be rickety, if they are syphilitic.

Osteomalacia may be produced artificially, rickets never.

The affection called congenital rickets is not rickets, it is achondroplasia.

An alteration so typical and methodical as rickets cannot recognize different and commonplace causes for its origin: it must and does point in all circumstances to a single specific cause; and that cause is hereditary syphilis.

At the period when syphilis produces rickets, syphilis has spent itself, it has made its last effort. It exists no longer, but has substituted for itself a new affection.

This is an incontestable example of transformation of disease.

Rickets, though originated by a contagious diseases, is not contagious.

NOTES ON THE PATHOLOGY OF RICKETS.

By Dr. Adolph Baginsky (Berlin).—1.—The clinical experience, that congenital rickets is met with, that the majority of children born with congenital syphilis become ricketty even under the best nursing, that rickets arise as a sequela of grave febrile diseases, and of grave chronic gastro-intestinal disorder, that it arises in consequence of bad nourishment and want of fresh air, the further experience that rickets is associated with considerable troubles in the nervous system (Laryngismus stridulus, hydrocephalus, hypertrophy of the brain), all combine to exclude, from a clinical point of view, the possibility of explaining the disease, by a simple deficiency of the inorganic constituents of the bone.

2.—The opinion that rickets consists only in a deficiency of the lime is also excluded by the fact, that the proportions between the inorganic and organic (minus fat) constituents of the bone are so considerably altered—160 : 100 instead of the normal 563·: 100—that supposing the lime is eliminated from the food of the child for a whole year, the proportion would by a proximate estimate be found to be still 513 : 100.

3.—In a certain opposition to these clinical experiences are the experimental studies of some authors (principally Roloff in Berlin), who have proved that rickets may be produced in animals by withdrawing lime from the food.

I have repeated these experiments, and found:—

a.—Simple elimination of lime from the food produces, in fact, considerable changes in the bone.

b.—The change appears macroscopically and microscopically about the same as a slight ricketty change.

c.—The degree of change produced is, as it is shown by anatomical, and principally by chemical examination, only a mild one.

4.—If besides the elimination of lime from the food lactic acid is added to the latter, the alterations are considerably increased. This is shown by:

a.—By the macroscopical and microscopical examination of the bone.

b.—Especially by the chemical test.

5.—The considerable influence which the addition of the lactic acid has in connection with the elimination of lime from the food, proves that withdrawing of the lime alone cannot be the determinating cause.

6.—In fact, both factors, the elimination of lime and the addition of lactic acid have this in common, that they produce an alteration in the general nutrition, the one by withholding an indispensable constituent of the organism; the other by the introducing a substance apt to disturb the digestion.

7.—The lesion of the bones is only the most prominent feature, because the disturbance of the general nutrition happens in a time when the growth of the bone is most active.

8.—Further it is possible to prove that neutral solutions of peptones have the faculty of dissolving lime.

9.—This faculty of the peptones shows how in children, suffering from an alteration in the composition of the blood in consequence of faulty nourishment, lime combination may be dissolved in the growing and ossifying bone, and carried away from it.

10.—The elimination of the carried off lime combinations takes place through the intestinal canal, as can be shown by the examination of motions from ricketty children.

11.—Rickets is therefore a dyscrasia originated by an alteration in the general nutrition which may be caused by various noxious influences working upon the infantile organism.

12.—In accordance with this view, are the well-known successful therapeutic results of such remedies which are suited to improve general nutrition, especially good hygienic conditions, normal nourishment, the use of baths and tonic medicines.

N. B.—Preparations will be demonstrated at the meeting of the Section.

SYPHILIS AND RICKETS.

By Dr. Kassowitz.—1.—The essence of the rachitic process does not consist in deficient supply of lime-salts to the growing bones, but in a chronic inflammatory change at their apposed surfaces.

2.—As, even normally, the very fact of nourishment being supplied by any particular blood-vessel prevents the formation of bone substance and the deposit of lime-salts for a certain area around that vessel; and, further, since the nutritive current of a blood-vessel, which has been newly formed or prolonged in bone, brings about a solution of bone substance already developed, and absorption of its lime-salts, it follows, as a necessary consequence, that the hyperemia and morbid vessel formation, which accompany the chronic inflammatory process, must result, on the one hand, in a markedly increased breaking down of normal hard bone substance; and, on the other, in a deficient bone formation, and especially in a considerably lessened deposit of lime-salts in the newly formed bone.

3.—That such a chronic inflammation does so very frequently occur at the apposed surfaces of the growing bones during the last months of fetal life and the earliest years of infancy, depends on the fundamental difference between the method of growth in the bones and that of all the other tissues in the animal organism. For all the latter grow by means of enlargement and multiplication of their separate elements (*expansion*). The bones, on the other hand, are only able to increase their volume by means of the deposit of new elements upon older portions of bone, which have already become hardened and incapable of any extension. Hence, it follows, that in growing bone there must be an altogether peculiar distribution of the nutritive juices, which cannot be distributed at all equally to the whole bone, as is the case with parts of the body which grow by expansion, but must be directed very disproportionately towards those circumscribed parts which have to provide for the growth of the whole skeleton.

4.—If the blood and nutritive juices during the period of active growth convey any injurious element, such as is capable of producing an inflammatory irritation in the walls of the vessels and in the tissues, it follows from the peculiar distribution of the juices, that the irritation will act chiefly at the apposed surfaces of the actively growing ends of the bone.

5.—Clinical observations seem to show that rachitis is not produced by any single definite morbid state, but that all those causes collectively which impair the health and general nutrition of the child during its period of most active growth, are able to produce those inflammatory phenomena at the apposed surfaces called rachitis.

6.—From the great frequency with which rachitic phenomena are found during the last months of fetal life, one must logically assume that injurious influences pass over from the maternal circulation into the nutritive juices of the fetus, and are able to give an impulse to the inflammatory process alluded to.

7.—For the same reason, as is common with every other exciting cause of inflammation which circulates in the blood of the fetus or child, the syphilitic poison must possess in a very high degree an active influence on the growing ends of the bone, and does in reality lead very often to marked inflammation and destruction at their apposed surfaces.

8.—And even when those intense specific phenomena, which accompany syphilis, are absent, or have already run their course, we find, almost without exception, on histological examination in the actively growing ends of bone in children affected with hereditary syphilis every sign of that lingering inflammation which rachitis implies, while clinical observation also teaches that children affected with hereditary syphilis almost universally become rachitic.

9.—Thus, the relations between hereditary syphilis and rachitis depend on the inflammatory influence of the syphilitic virus on the apposed surfaces of the bones when growth is most active.

ON SYPHILIS AS A CAUSE OF RICKETS AND MALFORMATION OF THE TEETH.

By Dr. Bouchut (Paris).—In this paper the author controverts the view that the bone-changes and deformities of the teeth observed in syphilis are due to syphilis as such, but contends that

that the real cause, both of so-called syphilitic and ricketty changes s a cachexia or faulty nutrition.

Similar results are observed in cases following on other affections, such as chronic enteritis, prolonged suppuration, and scrofula.

The author supports his views by several cases.

THE SURGICAL TREATMENT OF EMPYEMA.

By DR. C. GERHARDT (Würzburg). Small empyemata may be cured either by absorption or perforation through the lung.

Operative treatment is absolutely necessary either when pulmonary or circulatory troubles threaten life, or when all other treatments have failed.

Thorough aspiration of the pus may lead to cure. In many cases, however, it does not suffice.

Free opening into the pleura and frequent washing out with antiseptic solutions is not free from danger nor always reliable. The best methods consist in opening and emptying the chest under antiseptic precautions, or in washing out the pleural cavity and with the exclusion of air.

Very early childhood gives less favorable, the middle period of childhood more favorable, results than adult age.

THE SURGICAL TREATMENT OF EMPYEMA.

By DR. ADOLF BAGINSKI (Berlin).—1.—Pleuritic exudations are prevalent more frequently in childhood than in adult age.

2.—The diagnosis can only be made with certainty by means of an exploratory puncture.

3.—Evacuation of pus by the lung is not inconsistent with perfect recovery.

4.—The indications for surgical interference are: (*a*) continuous fever; (*b*) continuous and distressing cough; (*c*) loss of appetite and wasting.

5.—Antiseptic aspiration often suffices for the cure. The puncture must be made in the lowest part of the pleural cavity; and only a portion of the fluid should be evacuated.

6.—If after two or three aspirations the fever continues, and the empyema refills, and if the patient loses ground, then a free incision should be made into the pleura. Antiseptic precautions should be rigidly adopted.

The cavity may be washed out with a three-per-cent solution of salicylic acid. An elastic drainage tube should be inserted and antiseptic dressings applied.

The resection of a portion of rib can generally be avoided in children. The cavity is to be washed out after the operation as often as the physical conditions render necessary.

ON HONEYCOMBED TEETH, REGARDED AS AN EVIDENCE OF INFANTILE CONVULSIONS.

By M. Magitot (Paris).—1.—Brief description of the external character and histological peculiarities of the malformation termed "Honeycombing" of the teeth.

2.—Its production due to abrupt suspension of nutrition in the dental follicles. Resemblance of this lesion to the notches on the nails resulting from certain maladies.

3.—Constancy of the relation between the presence of the lesion and the occurrence of infantile convulsions. Numerical correspondence between the stages, or notches produced, and the convulsive crises. Local correspondence between the point affected, and the extent of tooth formed at the particular epoch when the convulsions occurred.

4.—Refutation of the hypothesis that attributes this lesion to any illness whatsoever occurring in infancy.

5.—Refutation of the hypothesis of Hutchinson and Parrot, who attribute it to inherited syphilis.

REMARKS ON THE PATHOLOGY AND TREATMENT OF GENU VALGUM IN CHILDREN.

By Alex. Ogston, M.D. (Aberdeen).—1.—Genu valgum in children is much more tractable than in adolescents.

2.—The mechanical treatment by splints and apparatus produces perfect cures, but is so tedious and difficult to carry out that it does not answer the requirements of practice.

3.—Hueter's method of bandaging in the flexed position has the same objections as the mechanical treatment.

4.—No form of osteotomy is required in the genu valgum of children.

5.—Délor's method of forcible straightening is free from danger, and perfectly efficacious in all cases of knock-knee in children.

By William Macewen, M.D.—Some observations will be made on the *Pathology of Genu Valgum*, tending to show that the deformity is most frequently, and principally, due to an internal curvature of the lower third of the femur, occurring in 120 out of 166 limbs, which were carefully examined. Along with this internal curvature of the lower third of the femur, there is generally associated an increase in the length of the internal condyle, although this plays a secondary part in the formation of the deformity. The tibia is affected in about a third of the cases of genu valgum, and in the majority of these it is only secondary to the curvature at the lower end of the femur.

Cases suitable for the Operation.—In the first four or five years of life, genu valgum ought to be treated medically, by the provision of proper hygiene, and attention to the limbs. The surgeon cannot be expected, however, to draw a hard and fast line at any age, and say that on the one side of this line he ought to operate, while on the other he ought not. It is much better to consider the whole circumstances and surroundings of the case, and so to decide, always providing that the operation is not performed during the stage of *ramollissement*, whatever the age of the patient may be. As a matter of fact, I have operated on few cases of genu valgum under eight years of age, while the average age of those operated on has been fifteen years.

Results of Supra-Condyloid Operation.—The author has personally operated up to this date (April 28th) on 522 limbs affected with genu valgum. Three patients died *after* the operation—one from diphtheria, one from cerebral meningitis, and one from pneumonia contracted prior to the operation—but there has been no death from the osteotomy. Of the wounds leading to these osteotomies six have suppurated, the rest healing by organization of blood-clot.

Otherwise the results have been highly satisfactory, the patients having been benefited, not only by enhanced personal appearance, but by greater utility and power of limb. They invariably have been able to walk easier, better, and further after the operation, than before it, and in many instances they have been able to engage in occupations from which they were previously debarred.

Dr. Little (London).—By genu valgum should be understood a distortion of the knee-joint, and not a deformity from curvature of long bones.

Genu valgum is an alteration in form and relation of parts of the knee-joint apt to accompany several, indeed the majority of disordered states of the knee, in which all the active and passive organs of locomotion are concerned.

Even a sound knee may be affected with genu valgum through over-use.

Genu valgum may exist at birth, may originate in fast-growing infants from the want of mother's milk, independent of rachitis; from rachitis; from infantile paralysis and spasm; during the treatment of congenital club-foot; during weakness subsequent to measles, pertussis, and scarlet fever; also during the fast-growing period of approaching puberty, without rachitis.

A genu-valgoid condition may accompany tumor albus, the rheumatic knee, and may follow accidental injury.

Enlargement of internal condyle, and contraction of biceps tendon, are amongst the consequences, and not the causes.

Genu valgum, like club-foot, is not present at birth to a slight extent in all children as asserted by some surgeons.

Most of the asserted causes of genu valgum are inadmissible.

The most important secondary obstacle to recovery is diminished development of the external condyle and of the corresponding external articulating surface of the tibia, caused by the weight of the body being unduly thrown upon those parts.

When the young infant's genu valgum is gently straightened by the hand of the surgeon, he feels with the tip of the finger a gap between the external condyle and subjacent part of tibia. This gap is also seen on placing the bones of an anatomical specimen of genu valgum in their proper relation, and is filled up by nature when the genu valgum is cured without surgical operation, provided the knee is maintained in a state of extension and adduction, the patient using the limb throughout except in the severest cases. Confinement to bed or couch, and forcible straightening during anesthesia are not necessary, even in adolescents, except in the most neglected and aggravated cases.

If force be necessary, osteotomy is the preferable form, especially Macewen's method. By it callus, succeeded by a triangular wedge of bone, is formed in the gap created by the operation in the external supra-condyloid part of the bone opposite to the place of insertion of the chisel. Osteotomy may be regarded as the complement of treatment by orthopedic apparatus, the indications being the same both by operative and instrumental methods ; but to supply the deficiency of bone between the external condyle and subjacent part of tibia, or to induce its deposit on the external part of the severed femur, so as to lower the external condyle, and thus bring both condyles to the same level.

Rachitic curvatures of thigh and leg bones, inducing a genu-valgoid state, after the age of seven or eight, may require, *when severe*, multiple osteotomy. The surgeon, however, needs to remember that considerable curvature of the thigh and leg is not incompatible with comfortable use.

Knee-joint contraction in the flexed position, whether arising from acute or chronic synovitis, traumatic or strumous, or from rheumatism, or from paralysis, or spasm, when complicated with genu valgum, requires simultaneously with attention to the morbid contraction, the same surgical attention for removal of the abduction of the leg as simple uncomplicated genu valgum does.

Illustrative woodcuts were given in an appendix to the paper.

Bernard E. Brodhurst, F.R.C.S.—Genu valgum is here regarded as a constitutional rather than a local defect ; and it is shown to be accompanied for the most part by a relaxed condition of the ligamentous system in general, and to be preceded by flat-foot. Especially the ligaments on the inner side of the ankle, and those in the sole of the foot, having yielded, the arch of the foot becomes flattened, and the foot itself everted ; the inner malleolus projects inwards and is lowered towards the ground, and the shaft of the tibia is inclined outwards.

Thus, the weight of the body is thrown unduly to the inner side of the limb, and is borne rather on the inner margin of the foot than on the entire breadth of the sole of the foot.

Secondly, the long axis of the femur becomes inclined inwards, the inner condyle protrudes, and the internal lateral ligament yields to the superincumbent weight, and the weight of the body being no longer borne in a vertical line and transmitted through the long axis of the femur and the tibia to the arch of the foot, is thrown to the inner side of the knee and of the foot. These, then, being the relative positions of the femur and the tibia, the former inclined inwards and the latter outwards, the condyles of the femur necessarily assume an oblique position from without inwards.

In the normal condition of the bone, there is usually some difference in the length of the condyles: in a ricketty bone the inner may be one inch longer than the outer condyle; in the ricketty bone the inner condyle is nipple-shaped, and the outer is undeveloped, or almost absent; so that the superincumbent weight could never have been borne on the foot, but it was probably borne on the knee. The length of the inner condyle varies according to the healthy development of the bone. The difference in length may be less than one-tenth of an inch, or it may be in an ordinarily healthy bone as much as half an inch.

In its commencement, genu valgum is only apparent in the erect position, and it ceases in the horizontal position, just as is observed in scoliosis and in flat-foot; in an early stage of development these disappear in the horizontal position.

After some time, knock-knee becomes permanent. Even now, however, splints firmly supporting the knee, together with the horizontal position, are sufficient to remove this deformity.

As deformity increases, the biceps femoris becomes tense, and the ilio-tibial band and the external lateral ligament are rendered rigid. Then the right line of the limb being destroyed, the question arises how is it to be restored, so that it shall pass through the long axis of the femur and of the tibia, and impinge on the arch of the foot?

Various operations have been proposed to restore the straight line of the limb, such as forcible straightening, osteotomy, and tenotomy.

Tenotomy, however, or that operation known as Guérin's, is sufficient, without either force or osteotomy, to remove the most severe forms of genu valgum.

CONDITIONS GOVERNING THE OCCURRENCE OF PARALYSIS AND ALBUMINURIA IN DIPHTHERIA.

By Dr. A. Jacobi (New York).—(I.) *Paralysis.* Local paralysis of the soft palate, and sometimes the muscles of deglutition and epiglottis, often attends the local deposit on these parts, with edematous swelling of the same.

The diphtheritic paralysis, properly so called, is an affection of apparent convalescence. The majority of cases occur after mild attacks, sometimes after those with but little fever, and a slow general course. It does not usually occur in those complicated with albuminuria and nephritis. There is no symptom indicating its occurrence in the future.

(II.) *Albuminuria.* Albuminuria is often found in diphtheria, but is generally not a grave symptom. It may be the result of high temperature, or of suffocation, as in other diseases. It often appears in the first few days of the disease, not always with high fever, and appears to be the result of rapid elimination of the poison.[1] Acute diffuse nephritis makes its appearance at an earlier period than it does in scarlatina.

THE NATURE AND MODE OF PROPAGATION OF THE CONTAGION OF DIPHTHERIA.

By Dr. A. Jacobi (New York).—The nature of the contagion is probably chemical. The presence of bacteria in diphtheria does not prove its parasitic character.

The entrance of the diphtheritic poison is not the same in all cases. In some the origin of the disease is local. In others the poisoning of the blood by inhalation is the first step. In some both modes of infection act simultaneously.

Diphtheria is very contagious. Both the patient and his surroundings, dwelling, furniture, towels, visitors, etc., convey the disease, and may do so after a long time.

The contagion rises upward with the current of warm air in dwellings. It clings mostly to mucous membranes not endowed with many muciparous follicles. Mild cases may communicate serious ones, and vice versa. Recent wounds are affected easily and speedily. The disease has been contracted from animals. It attacks children under three months of age, and those over seven or eight mostly, and mainly such as have been affected previously.

ON DIPHTHERITIC PARALYSIS AND ALBUMINURIA.

By John Abercrombie, M.D.—I. *Paralysis.* The writer finds from an analysis of sixteen cases, that it generally makes its appearance from two to five weeks from the commencement of the diphtheria.

The earliest symptom, in the majority of cases, was return of fluids through the nose, or some other difficulty in swallowing. It should be borne in mind that the cases referred to in this paper were all cases of general paralysis. Irregular action of the heart was found in several cases, as also albuminuria, while paralysis of accommodation was ascertained, or could be inferred, in a considerable number.

Paralysis of the muscles of the chest-wall was present in more than half the cases, and was found to be a sign of very grave import.

The so-called "patella-tendon reflex" was found to be absent in all the cases in which it was investigated. Anesthesia of the soft palate was generally found with the paralysis, but no marked loss of cutaneous sensibility.

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[1] This seems to be the form most characteristic of diphtheria.

The muscles responded well to the induced current in the few cases where it was tried. In the cases that recovered, the paralytic symptoms generally lasted from five to six weeks; but in one case they persisted for fifteen weeks.

Of the fatal cases, two died about the ninth day from the onset of paralytic symptoms, the average duration of the fatal cases was about three weeks.

There have not been found such marked changes in the spinal cord as those described by M. Dejerine; but in some cases changes were observed in the central canal and multiplication of the corpuscles in the neuroglia, and in others a globular condition of some of the large motor cells in the anterior cornua, with disappearance of their processes; but the changes found were slight, and not constant.

Belladonna was the only drug which seemed to exert any influence over the disease, and the use of this drug in large and frequently repeated doses is recommended.

Albuminuria. The writer has found albumen present in the urine in about one-fourth of the cases.

He finds it difficult to fix the date at which albumen first appears in the urine, as it was often present when the patients came under observation; but in one very malignant case he found the urine highly albuminous (one-half) within twenty-four hours of the first symptom.

He has never seen albuminuria commence later than the tenth day of the disease.

In cases that recovered, it usually lasted only a few days; he has only once seen it last more than a fortnight.

In fatal cases, as a rule, the albuminuria persisted till death; in one patient, however, it disappeared two days before the fatal result.

He has never seen it associated either at the onset or during its course with anasarca; the urine is generally clear, hardly ever smoky; and he has not seen any case presenting symptoms of uremia.

The changes found after death are those of parenchymatous nephritis.

The presence of albumen in the urine is always an unfavorable sign; and especially in those cases where laryngeal symptoms coexist.

Its absence, however, is no proof that the patient will recover.

ON PARALYSIS AFTER DIPHTHERIA AND OTHER ACUTE FEBRILE DISEASES.

By WILLIAM SQUIRE, M.D., F.R.C.S.—There are three ways in which this seems to occur:—

First: By the general effect of waste matters in the blood where fever has been suddenly high, and the means of elimination insufficient.

Second: By the effects of local inflammation on the innervation of the part; with or without changes in the nutrition of the nerve-trunks.

Third: By nutritive changes in the nerve-centres as a consequence of altered blood, or blood supply, during or after the illness.

The last division includes organic lesions either from the state of the vessels of the part, or from embolism.

Diphtheria presents the first state of things more frequently than any other disease; but, as uncomplicated enteric or scarlet fever is sometimes followed by paralysis, and rheumatic fever not unfrequently where there is no infection from without, the conditions above stated, and not any special poison, are the constant factors. Some of these—high vascular tension and fever—are present in local inflammations, such as quinsy, where temporary paralysis of palate may occur without diphtheria, or in retropharyngeal abscess, where only the second class of conditions are concerned. After deep-seated inflammation of any part, altered nerve-state often persists long after recovery, as a numb or painful spot in the finger after inflamed hand; in the throat a nerve filament may be involved in a superficial necrosis, or exudation corpuscles may invade the nerve. Extensive change and wasting of the nerve tubules have been abundantly demonstrated by M. Dejerine. Short of this anatomical change, the irritability of certain nerves may be exhausted and functional alterations wrought in their centres with far-reaching effects. The early appearance of cardial and respiratory weakness in some cases of diphtheria may be thus explained where the general illness was not intense. The various shifting paralyses of the later stages of the disease come under the third division: this may partly be owing to anemia with enfeebled stimulus, now of one part of the nerve-centres, now of another; partly to irregular vaso-motor influence, but also to more permanent changes in the smaller vessels profoundly affecting the nutrition of important centres, as in fatal paralysis of the phrenic; or in paraplegia and loss of spinal reflex not restored for months; this, after typhoid, may recur after long intervals from fatigue or chill; also after rheumatism, when trophic disturbances from this cause are common.

TRACHEOTOMY IN DIPHTHERIA.

By George Buchanan, Professor of Clinical Surgery in the University of Glasgow.—1.—Tracheotomy is justifiable in diphtheria as well as in croup (if they are not identical diseases).

2.—Only in the sthenic or simply suffocative form should tracheotomy be resorted to.

3.—The type and stage of the disease demanding tracheotomy are best recognized by observation of the naked chest.

4.—The operation must be performed with the utmost deliberation, and the higher up the trachea the better.

5.—In the after-treatment all medicine should be abandoned, and reliance placed solely on nourishing food, with copious supply of fresh air, of a proper temperature, the moisture being secured by a porous sponge kept moist and hot, or a little loose gauze placed over the mouth of the tube, which must be kept scrupulosly clean and clear.

6.—Statistics of author's own experience.

THE SURGICAL TREATMENT OF CROUP AND DIPHTHERIA BY THE INTRODUCTION OF TUBES INTO THE TRACHEA THROUGH THE MOUTH.

By WILLIAM MACEWEN (Glasgow).—Dr. Macewen offered under this heading some observations on the introduction of tubes through the mouth into the trachea, with special reference to cases in which membranes are formed in the trachea. The remarks were illustrated by the details of a case of a membranous croup in which these tubes were successfully used, membrane and mucus being expelled through them. The patient was able to sleep and take fluid nutriment while the tube was *in situ*. Various tubes suitable for such cases were shown.

ON SOME POINTS IN THE ETOLOGY AND TREATMENT OF CHRONIC TUBERCULAR DISEASES OF INFANCY AND CHILDHOOD.

By THOS. MORE MADDEN, M.D., M.R.I.A., Physician to St. Joseph's Hospital for Sick Children (Dublin).—The object of this paper is to call attention to some of the causes of the increasing frequency of chronic tubercular diseases observed in the practice of the Children's Hospital at Dublin. In an experience of some twenty-four thousand cases of diseases of childhood and infancy, the author estimates that in rather more than one-third of the entire number tuberculosis was the *fons et origo malorum.*

This increasing proportion of tubercular complaints is ascribed, *first*, to the physical deterioration of the people, resulting from the wide-spread intemperance now prevailing amongst women as well as men, and the consequent toxicological effect of this alcoholic poisoning on their offspring; *secondly*, amongst the causes of tuberculosis the local sanitary condition of the poorer quarters of Dublin is noticed.

With regard to the connection between tuberculosis and scrofula, the author, from an extensive experience in Algiers and other countries where scrofula is most prevalent, comes to the conclusion that the scrofulous diathesis is the prolific source of all tuberculous diseases. In proof of this he refers to recent investigations into the pathology of scrofulous lymphatic glands, in which there is a tendency to the development of cell-growths undistinguishable from the giant-cells of phthisis. These are associated with opaque patches, in which cheesy degeneration occurs, as well as with a deposit of submiliary tubercles, which become starting-points of local irritation, leading to suppuration and the formation of purulent cavities.

With regard to the treatment of the malnutrition with which tuberculosis is connected, the author refers to his experience in various southern health resorts, of the influence of climate as a curative agent in some forms of tuberculosis and scrofula.

THE CONNECTION OF CHOREA WITH RHEUMATISM.

By Prof. Steffen (Stettin).—A definite interdependence between chorea and rheumatism is not as yet proved. That both of these morbid states are often joined with endocarditis cannot be used as evidence of such a connection.

The relation between chorea and endocarditis cannot be fixed anatomically or pathologically. Probably the chorea is always the primary morbid phenomenon.

The chief symptoms of acute endocarditis are active fever, dilatation of the heart, with enlargement of the area of dulness, a systolic blowing murmur, and an accentuation of the second sound in the area of the pulmonary artery. The dilatation precedes the murmur, if the endocarditis has originally or exclusively attacked the heart-walls. In primary inflammation of the valves the opposite takes place.

When an endocarditis which exclusively involves the heart-walls recedes, the dilatation of the heart disappears first, and then gradually the blowing murmur. If the valves are also attacked, the systolic murmur remains after the dilatation has disappeared. Dilatation and hypertrophy may afterwards develop afresh, as a secondary process.

Acute dilatation of the heart is observed without endocarditis in grave and acute obstruction of the pulmonary circulation and in septic processes.

Cardiac murmurs occur in chorea without endocarditis. These depend on impaired function of the heart, not only through nervous influence, but also through the obstruction to the circulation of the blood, which occurs as a result of the spasmodic movements of the body.

ON SUBCUTANEOUS NODULES CONNECTED WITH FIBROUS STRUCTURES OCCURRING IN CHILDREN THE SUBJECTS OF CHOREA AND RHEUMATISM.

By Tomas Barlow, M.D., F.R.C.P., and Francis Warner, M.D., M.R.C.P.—The nodules described vary in size from that of a mustard seed to that of a bitter almond.

They are strictly subcutaneous, the skin over them being simply raised, and without any heat, pain, redness, or infiltration.

In most situations they are slightly movable.

They occur in connection with fasciæ and tendons, and especially near joints.

The back of the elbow, the malleoli, and the margins of the patella are the commonest sites.

Other situations are the neighborhood of the vertebral spines, the spine of the scapula, the cresta ilii, the extensor tendons of the foot and hand, the temporal ridge, and the superior curved line of the occiput.

They are mostly symmetrical.

In regard to minute structure, they consist of small masses of loose fibrous bundles, sometimes very vascular.

In regard to evolution :—

1.—These nodules may appear in one crop, *i. e.*, several nodules appear simultaneously in different parts of the body.

2.—Successive nodules may appear.

3.—The nodules subside generally within a period of two months.

4.—They may partially subside, and then undergo recrudescence.

5.—After complete subsidence, so far as manipulation can determine, a new crop may appear.

6.—They never become bony, and never become infiltrated with urate of soda.

7.—Their evolution is not attended with pain, and rarely with marked pyrexia. Often during the time when they are present there is no pyrexia.

These nodules are to be clearly distinguished from—

(*a.*) The nodi digitorum of Heberden.
(*b.*) Gouty nodules.
(*c.*) Erythema nodosum.
(*d.*) Syphilomata.
(*e.*) Scrofulides.

In regard to age, they have been observed by us only in children and young adults, the limits being 4½ years and 19 years.

In regard to sex, out of 26 cases 17 were female, 9 were male.

In all the cases it was believed there was heart affection.

13 out of the 26 cases had well-marked chorea ; 8 had erythema marginatum, or erythema papulatum ; 1 had purpura in addition.

There was a history of acute rheumatism in 10, and of subacute rheumatism, with vague joint-pains, in 8.

It is submitted—

1.—That these subcutaneous nodules may be taken as indicative of rheumatism in children.

2.—That when found associated with heart disease and chorea, although no history of rheumatic fever can be obtained, nevertheless their presence gives a presumption that the chorea is rheumatic.

3.—That in regard to prognosis and treatment, although the nodules are unimportant in themselves, they are, nevertheless, of serious import, because in several cases the associated heart disease has been found actively progressive.

4.—That in nature they are probably homologous with the inflammatory exudation which forms the basis of a vegetation on a cardiac valve.

ON CHOREA.

By DR. OCTAVIUS STURGES.—The author, in a short summary of facts, derived chiefly from cases under his own care, discusses the several modes of origin of chorea: its modifications at different ages, and particularly that view of the pathology of the affection which seems to be favored by the observation of its heart symptoms and of their variations in childhood, adolescence, and adult life.

ON THE RELATIONSHIP OF CHOREA TO RHEUMATISM, ETC.

By STEPHEN MACKENZIE, M.D., F.R.C.P., Physician to the London Hospital.—In this paper the author arrives at the following conclusions from an analysis of one hundred and seventy-two cases admitted into the London Hospital during six years:—

1.—That some cardiac abnormality is present in more than half the cases of chorea.

2.—That the cardiac abnormality is due to endocarditis affecting almost exclusively the mitral valve.

3.—That in over 80 per cent of cases the heart lesion persists.

4.—That absence of murmur is no proof of absence of organic heart disease.

5.—That rheumatism has pre-existed in nearly half the cases for certain; and that there are strong grounds for believing that it has been an antecedent in a very much larger proportion of cases.

6.—That no other very frequent exciting cause of endocarditis is shown to have persisted, or to be more frequent, amongst the non-rheumatic than the rheumatic.

7.—That the form of heart disease met with in chorea is that seen in connection with rheumatism.

8.—That rheumatism is in nearly all cases the cause of the heart murmur which so frequently attends chorea.

ON THE RELATIONSHIP OF CHOREA TO RHEUMATISM, WITH ESPECIAL REFERENCE TO THE NATURE OF THE HEART MURMUR WHICH SO FREQUENTLY ATTENDS CHOREA.

By JOHN W. BYERS, M.A., M.D., Physician to the Belfast Hospital for Sick Children.—I. Short statement of the current medical opinion on the subject.

II. Analysis of a series of cases from the Belfast Hospital for Sick Children.

III. General conclusions.

1.—That in those cases of chorea in which there is a cardiac murmur, this murmur is generally organic.

2.—That the murmur is usually heard at the mitral area, and is systolic.

3.—That in some cases, however, this murmur may be inorganic.

4.—That in those cases in which the murmur persists after recovery from the chorea, there has often been a rheumatic history.

5.—While in a large number of cases a close connection subsists between rheumatism and chorea, and while there is considerable evidence to support the view that rheumatic endocarditis is the connecting link between the two (the chorea being due to emboli), that this embolic theory will not explain all the cases.

6.—That there are cases of chorea without any cardiac bruit, and without any history of rheumatism.

7.—That in many fatal cases of chorea, some in which there had, and others in which there had not been a cardiac murmur, and some in which there had, and others in which there had not been a rheumatic history, post-mortem examination has demonstated a morbid condition of the mitral valve.

ON THE TREATMENT OF SCROFULOUS INFLAMMATION OF JOINTS.

By PROF. HUETER.—1.—Scrofulous inflammation of a joint is characterized by the formation of granulation tissue, so that suppuration follows, while in other forms of joint inflammation, especially the traumatic form, suppuration precedes this formation of granulation tissue.

2.—Scrofulous inflammation can be described as leading to the formation of granulations, as a synovitis granulosa, if it proceeds from the synovial membrane; as a myelitis granulosa, if granulation masses are previously formed in the medullary substance of the bones (of the joint). In the latter case, the synovitis granulosa follows the myelitis granulosa.

3.—In the scrofulous granulations, "noxæ" develop themselves, which, at the seat of the primary disease, lead to the formation of tubercles (local tuberculosis of joints), and by getting into the blood-vessels produce general tuberculosis (lungs, and other organs).

4.—This form of joint-inflammation may therefore be called the scrofulo-tubercular.

5.—That form of joint-inflammation, which is produced by congenital syphilis, shows similar appearances; it must, nevertheless, be differentiated, both for diagnostic and prognostic purposes, since there are no "noxæ" which can lead to tuberculosis.

6.—The early stage of scrofulous inflammation may be successfully treated by the injection of a 3–5% solution of carbolic acid. The injection must be made with a Pravaz syringe, in such a way that the solution comes in immediate contact with the granulation tissue, *i. e.*, with the interior of the joint, if the case is one of synovitis granulosa, and with the interior of the bone, if it be one of myelitis granulosa.

7.—Antiphlogistic treatment of scrofulous joints (fixation, massage, compression, permanent extension, bloodletting, blistering) is of little or no value.

8.—Incision into the joints, drainage, scraping away the granulations, or partial venesection of a joint, are to be discarded.

9.—Carbolic injections having failed, excision is the best treatment, especially after suppuration has set in.

10 and 11.—Excision should be total. When practised early, the results are the most satisfactory.

12.—Scrofulous manifestations (local), after excision, are best treated by the application of the actual cautery, and the dusting on of iodoform; or by the introduction of iodoform crayons into the fistulous openings.

THE EXCISION OF JOINTS IN CHILDHOOD, IN REFERENCE TO THE SUBSEQUENT GROWTH AND UTILITY OF THE LIMB.

By M. Ollier (Lyons).—Every excision of a joint, during childhood, interferes with the subsequent growth of the limb.

The sub-periosteal method of operating interferes least with the growth.

The inequality in length becomes visible only after a time, and varies with the extremity.

This arrest of growth, which is quite inevitable, should induce the use of antiseptics and "abraison articulaire."

In cases where anchylosis is desired (knee), it is well to remove as little as possible.

Where mobility is essential, an effort must be made to constitute a new joint, especially when the parts of the bone about to be removed do not contribute much to the growth of the limb (elbow).

REVIEW.

The Mother's Guide in the Management and Feeding of Infants. By John M. Keating, M.D., Lecturer on the Diseases of Children at the University of Pennsylvania, etc., etc. Philadelphia: Henry C. Lea's Sons & Co. 12mo, pp. 118.

The title of this little book is well chosen, and Dr. Keating has written a work which should be read and its precepts followed by every intelligent mother in this country. It is free from all technical terms, the language is clear and distinct, and so carefully written that it cannot fail to become popular. It has always been a mooted question how far it is well to instruct the public, but works like this one will aid the physician immensely, for it saves the time he is constantly giving his patients in instructing them on the subjects here dwelt so thoroughly and practically upon. The author has gone very fully into all the details of the management of the infant, and has divided his subject into three parts: 1st, General management from birth to dentition; 2d, General management during dentition; and 3d, Management after early dentition. There is nothing particularly new or worthy of special comment; the subject is carefully written out, and every detail that a nurse should know, and which the physician is often years in acquiring, is here carefully noted. Dr. Keating has written a practical book, has carefully avoided unnecessary repetition, and, I think, successfully instructed the mother in the details of the treatment of her child as devolves upon her; he has studiously omitted giving prescriptions, and instructs the mother when to call upon the doctor, as his duties are totally distinct from hers.

T. S. P. F.

ABSTRACTS.

Prepared by J. FEWSMITH, JR., M.D., Newark, N. J.

1. Anders: The Retrogression of Lymphangiomata (*Jahrbch. f. Kindhlkde.*, XVI. B., 3 u. 4 H.).—DR. E. ANDERS reports a case of the above, which is of interest, not only as giving some essential diagnostic points, but especially also in regard to the question of spontaneous involution in these tumors of the lymph-vessels, so comparatively rare, but of late years so carefully studied.

A. S., two years and two months old, child of healthy parents, strong and well-built, was born with a tumor of right half of breast. At first it was the size of a dove's egg. The growth was never rapid, but constant, with periodical increase and decrease in size, until now it is as large as a large man's fist, of irregular, half-spherical shape, situated below the mamma on right chest-wall. The skin covering it is reddened and completely adherent. The tumor cannot be lifted up from the ribs, but a little lateral motion upon them is possible. It is not tender ; feels hard ; in spots lipomatous, and here and there are roundish spots which give the impression of cysts, though no clear fluctuation can be made out. The child entered hospital on December 15th, 1878. Up to January 3d, 1879, no change was observed in the tumor. Then the skin became more red and the tumor harder. Two days later it was considerably increased in size and very tense, and the child had fever. This lasted till January 15th, when a spontaneous rupture of the tumor occurred at about its centre. The opening discharged a yellow, viscous fluid, which coagulated rapidly on exposure to the air. The microscope showed in it cells and elements identical with mucous corpuscles. This lasted several days, and the tumor diminished slightly in size ; then it ceased. The author then devotes some space to stating why no operative measures were now used to remove the tumor. They decided to use first inunctions of blue ointment. This was continued for two months, with occasional interruptions on account of salivation, and the tumor was thereby greatly diminished in size. It now was smaller than at the time of entrance to the hospital. In April again there was an increase in it, but this time this disappeared without any treatment and without rupture, and the tumor became smaller than at any time before. The patient was then discharged, but occasionally seen, and a constant decrease observed in the tumor. In November, 1879, the child was again admitted to hospital (for other trouble). The parents stated that since last seen there had been another rupture of the tumor and discharge of yellow fluid, after which it had decreased in size. This had now gone on until the only evidence of the whole tumor was a slight thickening and hardening of the skin at the spot where it had been. The fistulæ could not be found. This was then a congenital, slowly growing, periodically increasing and decreasing, non-painful tumor of the right half of the breast, which, after spontaneous rupture of the skin, secreted a yellowish, rapidly coagulating fluid containing lymphatic cells and elements. First, the situation was unusual, the most frequent localizations being on throat, neck, forehead, axilla, breast, shoulder, extremities, etc. Of the few cases of lymphangioma of the breast reported, one or two others disappeared after puncture, and one after erysipelas. The pathognostic points for the diagnosis were first the periodical increase and decrease in the tumor, and, second, the fluid secreted. With these two cardinal points the diagnosis may be regarded as sure. Very seldom the fluid has a little blood mixed with it. Many explanations have been attempted of the periodical swelling and shrinking of the tumors, one author having even attributed it to the phases of the moon. In this case the swelling seemed to be inflammatory, but certainly had no connection with external injuries, and it is hard to say what may be the exact connection between the tumor and the vascular system.

The roundish bodies spoken of as feeling like cysts the author is inclined to think were spaces filled with lymph (lymphangioma cavernosum), although there may also have been true cysts present, as in Waldeyer's case (lymphangioma cavernosum cysticum). It was interesting to note the visible decrease which took place in the size of the tumor after each swelling. Even when patient was not in the hospital, this fact was observed. This shows that the swelling must have been inflammatory, and the after-shrinking caused by adhesions. It is in this way we try to remove such tumors by injections of irritating substances. The swelling and shrinking may, however, take place without a following decrease in size—as, in fact, it did for two years in this case. The author does not lay much weight on the action of the inunctions, although the decrease of the tumor dated from that time. The case proves that lymphangiomata, like hematangiomata, may undergo spontaneous retrogression, but at the same time that this really takes place by a succession of inflammatory processes.

2. Prof Otto Heubner: Critical Examination of the Treatment of Pertussis (*Jahrbch. f. Kindhlkde.*, XVI. B., 3 u. 4 H.).—Although this is an old and rather a discouraging subject to the professional mind, it is yet of such practical importance to the busy physician, and Prof. Heubner has published such an unusually careful paper, that I feel like giving a rather full abstract of it. He speaks first of the thankless nature of his task, of the impossibility of studying the effects of different drugs from the rates of mortality, in a disease where only 7% die, and these from complications; of the multitude of remedies given in the books and the want of reliable statistics concerning them, and of the difficulty of following a large number of cases closely enough through the long course of the disease to obtain accurate facts in each case. He, therefore, works with smaller figures and, taking up Liebermeister's formula for comparing the action of two drugs, he examines into the relative value of a few of the remedies most frequently used. He lays down the following premises:

1st. In every case the diagnosis must be absolutely sure. (This we can readily grant him in all his cases.)

2d. The different cases must be as nearly as possible alike. (About this too he was so extremely careful that we need not dwell on the precautions he took.)

3d. The preparations of drugs used must be equally pure. (In regard to the bromide of potash, quinine, salicylic acid, and chloral hydrate there was no reasonable doubt on this point, but there may have been some slight variations in the belladonna.)

4th. The questions to be demonstrated by the experiment must be exactly precise and yet as simple as possible, that the answer may be clear and definite. This is possible in uncomplicated cases of pertussis, for the nature of the disease is such that we can propose three distinct directions for our questions. They are, first, the effect of a drug on the *intensity of the single paroxysms;* second, on *the frequency of the paroxysms;* and third, on the *duration of the disease.* With the few cases studied and the great care taken by the author, the first two of these actions could be quite easily watched. To determine the third was more difficult. Opinions vary greatly as to the normal duration of the disease when not treated. The minimum duration, however, of all observers, is not under 6 weeks, and the author decided the action of a drug on the duration of the disease to be *positive* only when this period was diminished, in all other cases it was put down as *negative*, except in a few in which after a long duration of the disease and fruitless treatment by other means, a remedy was found to produce an immediate effect, and even in these few cases great care was exercised. These three points are all to be carefully separated, for the one drug may be more favorable in one way while less so in another.

5th. We must know the period at which treatment begins, the doses, the time the remedy is continued, etc. All these points are carefully watched in the very complete tables prepared. There were 48 cases treated and as in some more than one of the five remedies above mentioned were used, there were in all 77 single examples. Let us now examine the tables.

1st. BROMIDE OF POTASSIUM.—This was given in solution, 0.5 to 3.0 grms. pro die. There are 23 cases in this table. In *no case* was there a *shortening of the duration* of the disease. The remedy therefore has no effect in this direction. When it had any effect on the paroxysms, it was to diminish both the intensity and the frequency, but this was only observed in 9 of the 23 cases. Bromide of potash is therefore not a valuable remedy in the disease.

2d. QUININE.—This was also given internally, but in rather small doses, not over 0.3 gm. pro die. There are 11 cases in this table In 3, the duration was decreased, and in each of these there was a decrease in both the frequency and intensity of the paroxysms, as was also the result in two other cases, that is in 5 out of 11. Quinine therefore in both respects stands ahead of the bromide, and perhaps the results would have been more favorable if larger doses had been given.

3d. CHLORAL HYDRATE.—In 2 cases this was given internally, in 8 others per rectum. The duration was shortened in 2 cases, the frequency and intensity of the paroxysms diminished in 6, that is in more than by the quinine.

4th. SALICYLIC ACID.—This was given internally in one case, and in the others was used t. i. d. in the form of a spray of a ¼ to ½% solution, about 30 grm. of this being used at each sitting, that is 0.1 to 0.15 of the acid. Out of 17 cases. the duration was certainly shortened in 2 and probably in 2 others. Very different was the result in regard to the amelioration of the paroxysms. In 10 out of the 17 cases, there was improvement in either the intensity or the frequency of the attacks. This effect was very marked.

5th. BELLADONNA.—The powdered extract was used in doses of from 0.015 to 0.06 grm. Out of 8 cases, the duration was shortened in 3, and in one other case the paroxysms were diminished. In its general effect on the diseases, therefore, belladonna would take first rank.

Perhaps now the most interesting part of the article is the mathematical comparison of these remedies according to the formula of Liebermeister. Without giving the computations, we may say that the point is to show, having no cases without any treatment, how great is the probability that the more favorable results attained by one remedy than by another are due to the use of the medicament. In the symptomatic treatment, that is the relief of the paroxysms, comparing salicylic acid and bromide of potash, the chance in favor of the former is as 8 to 1. In the general treatment, comparing belladonna with the bromide, the chance in favor of the former is 138 to 1; quinine and bromide, 54 to 1; chloral hydrate and bromide, 21 to 1; salicylic acid and bromide, 7.7 to 1. It must be confessed, however, that but modest boast can be made of the action of any of them. Belladonna is the best for general results, salicylic acid for immediate relief. The author closes by adding that he believes the action of the latter to depend more on its benumbing of the nerves than its disinfecting qualities.

3. Neubert: Treatment of Pertussis (*Jahrbch. f. Kindhlkde.*, XVII. B., 1 H.).—DR. NEUBERT refers to preceding articles on this subject, and especially to his own article, published in Vol. XIII. of the *Jahrbuch*, in which he reported the treatment of pertussis by inhalation every two hours of spray of a one-per-cent solution of salicylate of soda. Dr. Thomsen, in Copenhagen, took up the same treatment, and reported on it in Vol. XIV. In the winter of 1879-'80, Dr. Thomsen again had good opportunity to try the treatment, and his results were very favorable. The course of the disease was shortened, instead of the usual six to eight weeks, to five weeks or less. Of ten cases which came under treatment up to a week and a half after the commencement of the stadium convulsivum, seven healed in three weeks or less, one in three and a half weeks, one in five weeks, and one remained unhealed. Of the other nine, five healed in three weeks, one in five, and three not at all. The number of the paroxysms decreased rapidly, and the vomiting frequently stopped as soon as the inhalations were begun. In the article by Heubner (see abstract) comparing the treatment by salicylate of soda with quinine, belladonna, etc., a favorable influence upon the violence and number of the paroxysms was reported, but no marked shortening of the disease. Heubner used a very dilute solution and only three times a day. A one-per-cent solution should be used every two hours. Perhaps with the interest of comparison it may be well to present the table showing the exact results of this treatment. The eruption of the stadium convulsivum is taken as the commencement of the disease.

NO.	BOYS.	GIRLS.	BEGINNING OF TREATMENT	CONDITION OF THE LUNGS.	RESULT.	REMARKS
	AGE.					
1		7 years.	In the 4th week of the disease.	Free... ...	After eight days there were only three or four paroxysms a day; at first they were every half-hour. Violent vomiting ceased at commencement of treatment. Cough almost ceased in two weeks. No more paroxysms.	
2		5 years. Sister to No. 1.	8th day.....	Slight bronchial catarrh.	After three weeks the cough ceased entirely.	
3	5 years.		3d week....	Free......	The vomiting, which had been very violent, ceased the next day. After five days there were only two or three attacks a day and none at night. All well after seventeen days.	
4	3 years. Bro. to No. 3.		10th day....	Severe bronchitis	Child formerly predisposed to catarrh. The bronchitis lasted fourteen days. At first no improvement, then rapid change, and cure in five weeks.	
5	6 years.		15th day....	Slight bronchial catarrh.	For four days cough very violent. On twenty-fourth day so well that there was only a little cough in the day time and none at night.	
6		6 years.	2d week....	Free.......	Cured in three weeks.	
7		4 years. Sister to No. 6.	2d week....	Slight bronchitis	After three weeks the convulsive attacks ceased, but a slight catarrhal cough continued longer.	
8	5 years.		5th week...	Free.......	Without any effect. All in one family.	This unfavorable result was due to very bad hygienic surroundings.
9		4 years.	5th week...	Bronchitis.	Without any effect.	
10	3 years.		5th week...	Bronchitis.	Without any effect.	
11		5 years.	8th day.. ..	Severe bronchitis	In the first fourteen days no improvement, then rapid improvement, so that in twenty-five days the cough ceased entirely. Two months later a cold with attacks like pertussis, but which disappeared in eight days.	
12	1½ yrs.		2d week....	Free.......	Cured in five weeks.	
13	6 years.		1st day	Free... ...	Only twelve days of short, easy paroxysms.	
14		13 years	1st day	Free.......	Cured in fourteen days.	
15		6 years.	2d week....	Slight bronchitis	Attacks every half-hour. In first five days no improvement, then a rapid change, so that after fourteen days more the cough ceased.	
16		4 years.	1st day ...	Free.......	Cured in three weeks.	
17	3 years.		1st day ...	Free.......	Incomplete cure.	
18	2 years.		1st week...	Free.......	Cough ceased in three weeks.	
19	6 years.		1st day ...	Free.......	After three weeks the cough ceased entirely.	

4. Dr. R. Fœrster: The Treatment of Fever (*Jahrb. f. Kindhlkde.*, XVI. B., 3 u. 4 H.).—The three principal remedies to combat fever in childhood are cold or cool water, quinine, and salicylic acid. F. places the cool water at the head of the list. He finds that even from baths of the same temperature as the body we can in young children obtain a considerable lowering of temperature, while from the colder baths we obtain much greater effect than in adults on account of the greater extent of surface in children as compared with their weight. In a feverish child, therefore, the daily baths are not to be stopped. We may also give cool or cold baths of 12–17° R. (52–60° F.), of 10–15 minutes duration and repeated three times a day if necessary. The cold pack may be used where the bath is contraindicated by weakness, the presence of wounds, etc. These are the best means at our control to combat fever. In long continued high temperature, however, they must be supplemented by means that have a more lasting effect. These are quinine and salicylic acid.

One reason that these are not more generally successful is that the doses for children are not well enough established, and as a rule too small a dose is given. Hagenbach has arranged a series of doses, but the author has found them a trifle high. Perhaps the golden mean would fall between the two reckonings, which are in grammes as follows:

FÖRSTER.			HAGENBACH.		
YEAR.	QUININE GIVEN IN ONE DOSE.	SALICYLATE OF SODA IN 2 DOSES 3 HOURS APART.	YEAR.	QUININE IN ONE DOSE.	SALICYLATE OF SODA IN 2 DOSES 3 HOURS APART.
0–1	?	?	0–1	0.7–1.0	1.0
1–2	0.4–0.8	1.0–2.0	1–2		1:5–2.0
2–6	0.5–1.0	1.5–3.5	3–5	1.0	2.5 3.0
6–10	0.6–1.25	2.0–4.0	6–10	1.0–1.5	3.5–4.0
10–14	0.75–1.5	3.0–5.0	11–15	1.5–2.0	4.0–5.5

The author finds it best to give the quinine in one undivided dose, both because he gets a better effect from it, and also because of its unpleasant taste. The dose of the salicylate necessary to produce a lowering of the temperature equal to the quinine is so large that if it is given at once we may have unpleasant symptoms of nausea and collapse. It is better, therefore, to give it in divided doses 2 or 3 hours apart. He never uses it in cases where there is great cardiac weakness, or tendency to cardiac paralysis, as in diphtheria. With these three means, the author claims that we can in all cases cut down a high temperature.

5. Dr. E. Anders: Infiltration of Urine from Urethral Concrement (*Jahrbch. f. Kindhlkde*, XVI. B., 3 u. 4 H.).—In comparison with other causes of infiltration of urine, concrements of the urethra are extremely rare. Dr. A. reports a case of a stone as large as a bean, which, probably by the force of incuneation, perforated the urethra and made its way out, causing infiltration of urine and partial gangrene of the penis, and yet resulted in complete convalescence for the patient, leaving only a fine cicatricial fistula behind it. Only in the rarest cases is the urethra entirely closed by a calculus. A stone which is small enough to enter the urethra will, on account of the distensibility of the walls, allow of the passage of urine. Frequently stones caught in the urethra are carried for some time without serious damage. It is only wonderful that even sharp stones do not oftener cause perforation and wounds. This case is distinguished by its stormy course, with complete stoppage of the urethra and the rapid reabsorption of the infiltration after the spontaneous elimination of the stone.

M. O., a boy one year and nine months old, for four weeks had had some difficulty in urination and occasionally complete stoppage of the flow. For two days the urine had stopped entirely, and, with violent fever and pain in the urethra, there began a swelling of the perineum, scrotum and penis. The distention of the perineum increased; the scrotum became blue, the penis enormously swelled, and the skin and prepuce gangrenous. There was also infiltration about the mons Veneris. At a spot just above and to the right of the symphysis there was a urinous slough. Palpation showed no great fulness or pain in the region of the bladder. A catheter carefully introduced came upon an obstruction about the boundary of the pars cavernosa and membranacea urethræ. After incision of the gangrenous skin of the penis and prepuce, the discharge gushed more profusely out of the infiltrated tissues. As much as possible of the completely gangrenous tissue was then removed. Upon this, at the point mentioned above at the symphysis, a thick stream gushed forth, and with it a round, somewhat uneven stone about the size of a bean. The glans, now uncovered, is of normal color, and the corpora cavernosa are seen to be not involved in the gangrenous process. The stone sound is now easily introduced. No other stone found. Temperature 96½° ; pulse weak ; slight sleepiness. Wound disinfected with thymol water and compresses soaked in the same applied ; a catheter left in the urethra. On the next day the patient was much better : temperature 99½. Urine flows partly through the wound and partly through the catheter. On the following days the gangrenous portion of the scrotum was thrown off, and the swelling of all the other parts greatly diminished. On the fourth day the temperature rose to 104°. Patient was attacked with scarlatina. The local process made constant advance, and after four weeks the wounds on penis and scrotum were nearly healed, and the urine mostly passed through the urethra. After three months only a fistula of the size of a hair was to be found. This opened at the line between the penis and the scrotum, a little to the right, and passed somewhat backwards. Only a few drops escaped from it, and that only during urination. Considering the slight age of the child, with the corresponding narrowness of the urethra and the extremely large stone, we can easily understand the complete stoppage of urination. All the symptoms showed that the situation of the perforation of the urethra and the starting point of the infiltration was anterior to the lamina media. There were, therefore, no symptoms of infiltration in the pelvis and no signs of trouble in the bladder. On the same account the sphincter of the bladder acted normally, and the urine only issued from the fistula in drops during the act of urination.

6. Dr. E. Anders : Anomalous Formation of Extremities (*Jahrb. f. Kindhlkde.*, XVI. B., 3 u. 4 H.).—One of the rarest anomalies in formation of the extremities is total failure of the radius. Absence of one of the bones of the leg is more frequent. Dr. Petersen (*St. Petersburg Med. Wochenschrift*) has collected in all twenty-three cases of misformation or absence of the radius. Of these in eighteen there was total absence of the bone. In most of them there were other misdevelopments. In nine cases the defect was bilateral and in eighteen the corresponding thumb was wanting. In regard to the case observed by himself Petersen points out its relation to syphilis, *acquired* by the patient in earliest childhood. He also shows that in the two cases in his list where syphilis is mentioned all the fingers were present, while in all the others the thumbs were wanting, pointing to a defect of *development*, ostitis deformans. In connection with the question of syphilis, Petersen mentions cases reported by others in which was shown a spontaneous softening of the tibia, in one case to the extent of 5 cm. Dr. Anders' first case was in a boy fourteen days old, otherwise well developed and strong and of normal parents. There was total absence of the radius and thumb of one side. The ulna, with well-developed olecranon, articulated freely with the humerus. The wrist-joint was peculiar. The hand seemed to have been drawn, by the preponderance of the flexors, up on to the forearm. There was only slight motion in the joint. The articulation was not, as would be expected, with the capitulum ulnæ, but with a part of the ulna above this. The ulna was also a little shorter than that of the opposite side.

The second case was a form of adactylus, remarkable from its peculiar misdevelopment and its being hereditary. J. R., one year and one month old, slightly rachitic, had on the right hand only one finger with two metacarpal bones, on the left hand two fingers entirely grown together and three metacarpal bones. Each foot has only the large and small toes, curving toward each other, with two metatarsal bones. The child grasped small objects with the feet. His development in other respects was normal. The mother was of normal development. The father was of exactly the same abnormal development as the child, except that he had only one finger on each hand. The parents had been married twelve years and had six children. The first three were normal, the fourth stillborn and the development of the hands not observed, the fifth, dying early, was of exactly the same development as the one described above. The grandfather of the child suffered from syndactylus.

7. Dr. Ludwig Fanzler: Two Cases of Atropine Poisoning (*Jahrb. f. Kindhlkde.*, XVI. B., 3 u. 4 H.).—The author reports two cases which are of special interest in regard to the question of the antagonism of atropine and pilocarpine. He goes into the literature of the subject and relates some marked cases of peculiar individual susceptibility to atropine, one man having been poisoned almost fatally by two drops, put into the eye, of a one-per-cent solution. In both the cases here reported the poisoning was from eye drops, and as the first was extremely interesting from its clinical course as well as the therapeutics, I will give it rather in full, leaving out, of course, the history of the eye affection.

Sch. K., four years old, pale brunette, with enlarged cervical and axillary glands, had never been sick till five weeks before this, when the trouble with the eyes began. The solution used for eye drops was one-per-cent atropine. On January 21st, after twelve days' application, find the face reddened, head hot, throat injected but dry, and the membrane and tonsils swollen. There is slight cough, but no physical lung signs. Atropine was stopped, other treatment continued, and the next day the symptoms had disappeared and on January 24th the atropine was again begun. From January 29th on there were variations of temperature as high as 38.3° C. observed. On February 10th the child was very quiet and sleepy. During the night it complained of thirst, and February 11th it woke with temperature of 40.5° C. (105° F.) and full pulse of 140. On the left lower extremity were scattered, irregularly shaped spots, in size from a dollar to the palm of the hand, bright red, not raised above the surface, paling on pressure, not itching. The throat was actively congested and swelled. Child complained greatly of headache, had a dry cough and diarrhea. There was no sneezing or running of the eyes. The atropine was stopped, cold applications made to head and neck and salicylate of soda and Dover's powder given internally. Noon, temperature 40.0° C., pulse 130. Evening, 38.7°, pulse 116. Eruption has spread over the body.

February 12th.—Morn., 38.3°, pulse 120. Eruption paler. Evening, 40.0°, 130. Body again very red, the spots having become confluent. Diarrhea has ceased, other symptoms continue. From this day on the eruption and the other symptoms gradually disappeared, being each day scarcely perceptible in the morning, but coming on at night until the 16th, when there was no return of it whatever. On the 17th the patient felt perfectly well.

It is not to be wondered at that a diagnosis was here made of scarlatina, especially of scarlatina intermittens. The child was isolated and treated accordingly, and though the course of the eruption and the case upset this diagnosis, it was not till the child had another and severer attack that the true state of the case was made out. On February 18th, the use of atropine was again begun. February 20th, the child seemed irritable and fearful. March 1st, crying a good deal, afraid of strangers, depressed, complaining of headache. March 5th, in the evening violent headache, face red, head hot, no fever. Frequent vomiting and diarrhea. Treatment according to these symptoms.

March 6th.—At 4 A.M., the temperature was very high, pulse 140, consciousness lost, face red and hot, eyes open, staring and rolled upward, trismus, foam coming from the mouth, vomiting of a green fluid. The respiration was irregular, obstructed, with loud in- and experium. There were some slight twitchings and single tonic cramps of left extremities. This lasted one-quarter hour, then the consciousness returned, the face became pale, the pulse very weak. The child cried and moaned unceasingly over headache. Given four decigrammes chloral hydrate, after which it slept. From 8 A.M. on through the day the vomiting, headache, etc., continued and the child grew worse. At 2 P.M. it had three short eclamptic attacks and then became delirious. Evening, 38.5°, pulse 88, small and interrupted, respiration deeper and slower, red spots coming out on face, neck, and body. Right pupil contracted, on the left incomplete ptosis. Needle-pricks not felt on the left lower extremity. Vomiting ceased, headache intense, thirst increased, throat swollen and inflamed, urine scanty, slight diarrhea.

March 7th.—The history was much like that of the preceding day. The feet became edematous. No urine had passed since the preceding day. At 2 P.M. the child had a violent convulsion, lasting ten minutes and involving for the first time the face. After this about two hundred gm. of urine were passed. Specific gravity 1.026, acid, no albumen.

Dr. Fanzler pauses here to review the case fully and show how meningitis and eclampsia from gastricismus, etc., were excluded and a diagnosis made of chronic atropine poisoning, showing itself in an acute attack, the cumulative action of the drug. In this light the preceding lighter attacks also became clear, the first after twenty-four drops, the second after thirty-four drops, then the period of irregular psychical disturbance to be closed by this last attack, after seventy-two drops. As soon as this diagnosis was made, it was decided to use pilocarpine. Accordingly, right after this last paroxysm, at 3 P.M., F. injected five cgm. (I think this should be milligm.—J. F.) of the muriate. There was no reaction whatever, the child remaining in a sort of coma. At 5 P.M. the injection was repeated, again with no effect whatever. At 7 P.M. a third was given. Upon this the child moved and cried, and in three minutes the skin became moist and frequent motions of swallowing were observed. Face became warmer, and pulse rose from 88 to 108. In ten minutes this all disappeared. Deep sleep followed, and as temperature and pulse were normal, nothing further was done till morning.

March 8th.—The child woke with a clear sensorium, was hungry, and ate a good breakfast, while for two days before it had eaten nothing. There was no difficulty in swallowing. The headache, the anesthesia of the skin, and the edema of the feet were all gone. Pupils normal. No urine had been passed, but upon catheterization a little was obtained and found to be normal. The child was in good humor, laughed, sat up in bed, and played. Through the day no fever.

March 9th.—From now on there was no fever, and the child was perfectly well.

F. is careful not to overestimate the action of the pilocarpine in this case, but at the same time does not want it to be undervalued. He claims that the course of the symptoms, the failure of reaction after the first and second injections and the slight action after the third, show the antagonism exerted by the remaining force of the atropine. To make the point clearer, *the same injection of pilocarpine was given the child three days later*. This was followed in three minutes by all the *most marked forms of pilocarpine action*, lasting for an hour. This would seem to prove the diagnosis of atropine poisoning.

The second case was in a boy eight years old who had for about two months, off and on, used a three-per-cent atropine solution in both eyes. He then began to use wrong words, to mix the meanings of words, to make queer movements, etc. When brought to the hospital his face was intensely red, skin hot and dry, itchy; the breast, buttocks, and lower extremities scarlet red, while the neck and upper extremities were covered with red spots as in the other case. The pupils were widely dilated, mouth dry, throat congested and somewhat swelled. The boy was excited, restless, ill-tempered, and gave the impression almost of an idiot. Without describing the case further, suffice it to say that a diagnosis was made of severe chronic atropine poisoning. At 5 P.M. an injection was made of two cgm. (right this time.—J. F.) of pilocarpine muriate in the skin of the back. The boy did not seem to feel the prick of the needle, and not the slightest reaction followed. At 6 P.M. the injection was repeated with the same negative result. At 7 P.M. a third was given, also without the characteristic effect. At 9 P.M. the temperature was 98½, the pulse 92 and regular. The exanthema also began to pale, though this may not have been due to the pilocarpine, as it was seen also in the other case. At 10 P.M. the boy became restless again and the face red, and an injection of one cgm. was given, followed at 11 P.M. by the fifth one, also of one cgm. After the fourth there was no reaction, but after the fifth there was perspiration lasting about ten minutes.

After sleeping quietly the rest of the night, the patient awoke in the morning refreshed, with clear head, and in entirely normal general condition. At noon the head became hot, and the temperature and pulse rose. Another injection of one cgm. was given. This was followed by profuse sweating and some salivation, lasting about fifteen minutes. From this time on there was no return of the symptoms, and the boy remained perfectly well. In this case also, after a few days, an experimental injection was made of only four milligm. pilocarpine, only the fifth part of the injection first given, and lo ! in one and a half minutes profuse sweating and all the pilocarpine reactions, lasting for some time. Therefore nine cgm. of pilocarpine were given before an injection of four milligm. could produce its full reaction.

In reviewing the cases, the author candidly admits that symptoms of atropine poisoning may disappear of themselves, but when we look at the second and third attacks in the first case and the rapid cure of the chronic form in the second case, I think we can all agree with him that he has clearly shown the antagonism of the two drugs. He claims, also, that pilocarpine may be given freely in these cases till its characteristic action is obtained, and that in cases where there is an idiosyncrasy against atropine, an occasional injection of pilocarpine will permit its continued use much better and with much less detriment to the health than the customary injections of morphine.

8. Kaulich: Therapeutic Observations in Typhus Abdominalis (*Jahrbch. f. Kindhlkd.*, XVII. B., 1 H.).—PROF. J. KAULICH, in discussing the treatment of *typhus* in his clinic at the Franz-Josef's Children's Hospital, refers only to cases of abdominal typhus. Without going into a general description of the course of the disease, he mentioned some points in which it differs from the same disease in adults. The more marked of these may be summarized as follows : abdominal typhus of comparatively equal intensity will run a more rapid course in children ; the so-called status typhosus is more clearly and directly dependent on the violence of the fever ; extensive ulcerations of the intestinal membrane, hence, also intestinal hemorrhage, perforation, etc., as well as laryngeal ulcers, are rarer in children ; the diarrhea is not apt to be so severe; enlargement of the spleen, on the other hand, and general involvement of the glandular system is much more common and more marked in children ; early collapse and necrobiotic processes sometimes occur with astonishing rapidity, and may prove fatal ; finally, the nutrition of the body suffers more intensely and more rapidly, but also is more promptly restored.

The author spends some space in discussing the reasons for these points of difference in the course of the disease in children and adults, but his remarks may be summed up by saying that the anatomical and physiological condition of the tissues and organs of children is such as to allow of greater and more rapid changes than the more settled tissues of the adult. The author also only makes slight mention of any course of treatment which should have for its direct object the destruction of the supposed or real disease-germs and the interruption of the progress of the disease.

We may some day attain to this, but at present it is not in our power to abort a typhus. Our therapeutics consist of means which will best guard the functions of the organism, prevent tissue waste, and resupply it when lost. These objects are best attained by means of energetic antipyretic treatment by cold baths, quinine, salicylic acid, etc. The author has no new remedy to propose. He only wants to show what a persistent and methodical use of the old methods may accomplish, and to add to this the very early and systematic administration of good food and nourishment. This is really the important point in his interesting article. When, under the use of the antipyretic means to be described, the temperature in any case sinks to normal, even for a few hours, then the status typhosus disappears with all its varied symptoms. This is the moment to increase the nourishment, and in spite of returning or even higher fever, this increase is to be kept up. The objections to this the author claims are mostly theoretical. It might be feared that too early administration of nourishment would increase the meteorismus, irritate the ulcerated membrane, or even cause perforation. It is true that increased nutriment given to convalescents in a very low state does sometimes increase the fever, and that abstinence from food, even in a well man, will lower the temperature. It is also true that increased or too hearty diet may sometimes cause unpleasant intestinal symptoms. But it can hardly be believed that carefully conducted diet in a typhoid case would cause to pass into and through the small intestines anything more irritating than the degenerated secretions and disease-products of the intestine itself, or anything more likely to produce mechanical injury than the distention already existing. So far as the increase of fever is concerned, this may be controlled, and is at any rate not to be-so much feared if the food is assimilated and the constant waste of tissue constantly supplied. Symptoms of inanition, so frequent in long cases of typhoid, may thus be avoided. The point is to reach as soon as possible the point where food may be given and assimilated. This having been reached, the ability to take and assimilate food will, with careful and methodical continuance of the treatment, increase so that even before the febrile stage is past the child may begin to gain in weight, and by the time the fever is over may be as well nourished as at its commencement, thus avoiding a tedious convalescence.

The course of treatment is as follows: At the beginning of the rapid rise of temperature in the afternoon or evening, the child is wrapped in wet sheets and lightly rubbed, and this repeated at short intervals until there is a perceptible decrease in temperature. Generally four or five wrappings are necessary. Then a large dose of quinine is given (0.5 grm. to 2.0 grm.). In the most favorable cases the temperature on the next morning is normal, or subnormal. This is the effect desired, and when once attained it will usually be found that the wet packings alone will reproduce it on successive days. So soon as this normal temperature is attained the increased nourishment must begin, and after a day or two further increase will be possible, and so on, from day to day, until, sometimes even during the fever, full diet may be given.

It was found that the earlier in the case this treatment was begun the better was the result. It seemed also to work better the younger the children. In older children cold baths were used instead of the packings. The quinine was iven in wafers so as not to upset the stomach. The author gives thirteen cases, with temperature curves, which seem to justify his positions. He admits that in the normal course of a typhoid fever there is, toward the second half of the case, a remission of the fever and bettering of the symptoms, even without treatment; but his point is that by energetical antipyretical measures we may move this point forward to the very commencement of an attack. He makes two definite conclusions:

1. In most cases of typhoid, especially in young children, the temperature may be so controlled by antipyretic measures that the typhoid manifestations disappear.

2. Early nourishment not only does no harm, but re-supplies the loss of weight from the fever either in part or wholly during the febrile stage, thus reducing to the minimum the stage of convalescence.

9. Steffen: Diseases of the Spleen (*Jahrbch. f. Kindhlkde.*, XVII. B., 1 H.)—A. STEFFEN reports two interesting cases. The first is one of RUPTURE OF THE SPLEEN. This has been but rarely observed in childhood, though the literature of the subject contains several cases of its occurrence in adults. Most of these were cases of primary disease of the spleen, in the course of which some external injury, fall, blow or strain, caused a rupture. In a few cases the hemorrhage took place only into the capsule of the spleen, but in the majority the blood burst the capsule and entered the abdominal cavity. Authors agree in giving as frequent causes typhus, cholera-typhoid, the cold stage of intermittent, and less often abscesses. Simpson reported three cases in connection with pregnancy and confinement. The *Jahrbuch* has published one single case (Wittmann) of rupture of the spleen in a child. It occurred in a boy ten years old, with a severe typhus and who had had hemorrhage from the lips and gums. The spleen was greatly enlarged. On the eighth day in hospital large clots of blood were passed by the rectum, and under deepening collapse death took place. At the autopsy a large amount of partly fluid and partly dark clotted blood was found in the abdomen, and the intestines were filled with a dark fluid like tar. The spleen was four times its normal size, pale and soft. On its edge was a long, ragged tear which extended nearly an inch deep into its substance.

Rupture of the spleen in new-born children is of traumatic origin, caused by the act of delivery, but even here it is preceded by primary disease of the organ. Up to the present time but two such cases are on record. One was reported by Birsch-Hirschfeld (*Handbuch der Kinderkrankheiten*, von C. Gerhardt) and the other was reported in the *Jahrbuch* in 1871 by the author of this article. The case he now reports is very closely similar to the preceding one. The body of the boy was sent to him from the lying-in hospital for an autopsy. The mother had been brought into the institution while in labor, and the child at that time could not be ascertained to be alive. The body was normal, except that the abdomen was greatly distended. When it was opened there gushed out a large quantity of blood, dark and mostly fluid. The spleen projected below the ribs and measured 9 cm. in length and 5 cm. in breadth. The capsule was somewhat wrinkled, showing that the organ had become smaller since the hemorrhage. On the convex surface, on the line between the upper and the middle third, there was found a sharp-cornered, ragged tear which took in almost the whole breadth of the organ and was ½ to 1 cm. deep. The tissue of the organ was of a dark brown-red color and a sort of "mushy" feel. In other parts of the body there was nothing abnormal except anemia.

In neither of the author's cases was it possible to say what the preceding disease had been. There was no ground for considering it syphilitic, though in syphilis of the newborn the spleen is usually found enlarged. The author remarks in this connection that the size of the spleen in the newborn varies so much that we can only call it diseased when the increase is very decidedly marked.

AMYLOID DEGENERATION of the spleen in childhood is not so rare. The process may be confined to this organ or may extend to liver and kidneys. Occurring in the newborn it generally gives rise to suspicions of syphilis. The following case is remarkable on account of the enlargement and the change of position of the spleen:

M. A. was taken into hospital July 9th, 1880, at the age of one year and five months. The body was quite well nourished, the skin pale and the abdomen, especially on the left side, markedly distended. By palpation and percussion a tumor was found in this region which was painless, of regular shape and equal resistance at all points, and which changed neither shape nor situation on pressure or on change of position of the body. Its length, from the head of the eleventh left rib to the middle of the left os pubis, was 13 cm. Its breadth was 8 cm. The edge toward the right was sharp and could be seized. As the tumor lay right back of the abdominal wall and presented just the form of the spleen, and as percussion over the normal position of the spleen gave a tympanitic resonance, a diagnosis was made of tumor of the spleen. The pathological process was questionable. Leucemia was excluded because no increase could be shown in the number of the white blood-corpuscles. Examination of the urine gave no diagnostic points, showed no albumen. Examination of the other organs showed no pathological changes. The temperature was normal. The pulse varied from 118 to 148. The respiration varied from 46 to 72, averaging about 60. This was dependent on the compression or the thoracic cavity by the contents of the abdomen. Appetite and digestion were good, and in fifteen days the child was sent home with an increase in weight of 100 gm. On November 26th, the child was again taken into hospital. Its general condition was good. The spleen had increased 1 cm. in each diameter. There was a slight increase of the white blood-corpuscles. On January 1st, the child was attacked with acute bronchitis from which it died on the following day. At the autopsy, in addition to the condition of the lungs due to this attack and a normal heart, it was found that the tumor in the abdomen was the spleen. It weighed eleven ounces, measured 14 by 8.5 by 6 cm. The tissue was hard and firm, the capsule thickened, dark-gray, and tense. On section it could be seen even macroscopically that there was amyloid degeneration, and chemical and microscopical examination demonstrated this to be a fact. The other organs were normal. The spleen alone was affected and had so increased and changed its position. The causes of this process are hidden. It was congenital, for the enlargement was noticed soon after birth. There was no history of hereditary syphilis and no proof of it in the condition of the body, though no examination was made of the condition of the zones of ossification of the long bones.

10. Biedert: About Diphtheria (*Jahrbch. f. Kindhlkde.*, XVII. B., 1 H.).—PH. BIEDERT gives in this article a very interesting "critical review" of two authors on this subject. These are: (1) Morell Mackenzie Diphtheria, its Nature and Treatment, 1879; Diseases of the Pharynx, Larynx, and Trachea, 1880. (2) A. Jacobi: A Treatise on Diphtheria, New York, 1880. It will, perhaps, be interesting to us to hear what so good a critic has to say in connection with these to us familiar works. His article is principally a review of Mackenzie's work, with comparisons with Jacobi's.

Mackenzie's work contains ten chapters and one hundred and two pages, while Jacobi's is much longer. Mackenzie's *definition* gives quite concisely the author's views of the disease. "Diphtheria is a specific, contagious disease, which occurs epidemically, endemically, and solitarily, and is characterized by greater or lesser inflammation of the membranes of the pharynx, larynx, or air-passages, upon which, especially those of the fauces and air-passages, deposits of lymph or false membrane form which usually contain fungoid elements (bacteroid mycosis). During an epidemic, other membranes or wounds exposed to the air also become covered with exudation. . . . The disease has generally an adynamic character, is often accompanied by kidney troubles (albuminuria), and frequently followed by symptoms of innervation, which rarely cause permanent paralysis. Most of the fatal cases end by apnea, but a certain percentage die from asthenia, blood poisoning, or paralysis of the heart (cardiac thrombosis)." In this first chapter follows also a history of the origin of the disease among the Indians and Jews, while Jacobi, in addition, speaks of its first appearance in America. Biedert remarks that it would be desirable that attention should be more directed to the epidemiology of the disease and its cycles. In the second chapters both authors treat of the etiology, Jacobi making a distinction between the "method of contagion" (chap. iii.), and "Contagion and Incubation" (chap. iv.), Biedert thinks without reason. Both authors assume a specific poison, but do not say what the nature of it is. Mackenzie believes that it consists of small particles which may cling to a rough surface, whose development is favored by dampness and dirt, that it is with difficulty carried from body to body, that it probably, like the contagium of typhus and cholera (Pettenkofer) reaches higher development outside the body. He claims that the poison may remain quietly on walls, clothes, or furniture for three years, and then awake to activity. Mackenzie believes diphtheria to arise only from contagion, and that one attack protects against a second one. Biedert does not agree with either of these points. He says the opinion in Germany is rather with Jacobi, that one attack leaves a certain suspicion of relapses. In regard to the most important point of etiology, the question of fungus, Mackenzie would seem, with his "small particles," and his conviction that the germ theory explains all the symptoms, to agree with the supporters of this belief; but in view of negative experiments of others, and in view of the millions of fungi present in living bodies and doing no harm, he expresses doubt as to whether they really are the cause. Jacobi, as we know, expresses this doubt much more firmly. Biedert suggests that these organisms are, perhaps, only the *carriers* of the contagium. In addition to other predisposing causes, in speaking of the age, Mackenzie shows that of seventy thousand registered deaths the greatest number occurred between one and five years, next in the first year, and after that in the years from five to ten. The cases in the first year are rarer than the death rate would seem to show, for the disease is more fatal then. With this Jacobi agrees. Krieger also agrees with these points, though his views of etiology are opposed to both these authors, he believing that the disposition to the disease is almost without exception acquired gradually by a cumulative action of the hot summer air and overheated chamber air on the one hand, and thermal action on the skin on the other hand. Biedert thinks that Krieger's book will give rise to much further investigation.

The transmission of the disease may take place by direct inoculation of the poison, through the air, the food, or the drink, and according to Mackenzie may be carried by a third person from one to another without himself being affected. He makes the period of incubation usually two days, but possibly as many as fifteen.

In his third chapter, "Symptoms," Mackenzie describes six forms of the disease: 1. Typical diphtheria, with the three stages of general malaise and throat inflammation, exudation, and then death, or resolution; 2. The mild, or catarrhal form, without exudation; 3. The inflammatory form, in which violent inflammation and pain in the throat precede the exudation; 4. The malignant form, with typhoid symptoms; 5. The gangrenous form; 6. Chronic form, lasting seven weeks to three months. Jacobi leaves out the catarrhal form. Mackenzie and Jacobi agree very well as to temperature. Biedert, with great justice, complains that two such distinguished authors should cling to the Fahrenheit scale when the centigrade is undeniably better. Mackenzie, more frequently than other writers, saw an exanthema which was similar to that of scarlatina, but did not scale off. Biedert says the same is often seen in children suffering from other troubles, and he believes it will yet be brought under the as yet but poorly understood designation "rubeola." Mackenzie also has separate chapters for laryngeal diphtheria, or croup, and secondary diphtheria (in scarlatina, etc.).

In regard to diagnosis, the only point to be noticed is Mackenzie's method of diagnosing his *catarrhal* form, namely, from its occurrence, during an epidemic, the proof of infection, sometimes its limitation to one side of the throat, the violence of the constitutional symptoms (albuminuria), and sometimes the succeeding paralyses. In the malignant form death also sometimes occurs before the formation of a membrane. In differentiating from herpes tonsillaris, Mackenzie notices that the latter makes no advance. From tonsillitis follicularis, Jacobi diagnoses by the ease with which the plugs may be removed from the follicles, and a sound introduced within them.

In regard to pathological anatomy both authors draw largely from German sources. Mackenzie comes to the conclusion that the disease is a primary septic infection of the blood, and the throat symptoms a secondary manifestation. Biedert disagrees with this, and rather subscribes to Jacobi's opinion that the disease has now a local and now a general primary origin.

In the chapter on prognosis the uncertainty of each case is very clearly shown. Mackenzie claims that one-third of all cases in which membrane is formed are lost. Jacobi estimates the mortality at ten per cent. Neither author regard nasal diphtheritis as peculiarly unfavorable, while Biedert, with most German authors, regards this form as almost necessarily fatal.

In the treatment, Biedert remarks that at last the inhuman method of tearing or scraping off the membranes seem to be given up, and means are advised which at least do no harm. Mackenzie divides the local remedies into (1) the "forsaken" caustics, (2) astringents, (3) resolvents, among which he recommends lactic acid, (4) antiseptics (carbolic acid) permanganate of potash, chlorate of potash, chloride of sodium, hydrate of chloral), (5) varnishes, to prevent decomposition by excluding the air (balsam tolu). Biedert finds fault with him for not being more exact in his doses, strength of solutions, etc. For general internal treatment Mackenzie praises the tonics, iron and quinine, though he makes no special mention of alcohol, which Jacobi and Oertel regard as indispensable in severe cases. Mackenzie believes little in specifics. He gives expectorants, and internally, as an antiseptic, gives sodii sulpho-carbolate. This he gives sometimes in the large dose of fourteen to fifteen grm., which Biedert thinks (as also Jacobi) is too much, in consideration of later researches on poisoning with this drug. Both authors recommend disinfection and careful means of prophylaxis. Biedert gives all credit to both authors for the energy they recommend in prophylactic measures, but agreeing to a certain extent with Jacobi, he doubts whether it has been fully shown whether an active treatment (non-expectative, from the outset is so necessary or has so much influence on the course of the disease as has been supposed by some.

Mackenzie devotes his ninth chapter to croup, laryngo-tracheal diphtheria. He is one of the oldest and most energetic champions of the identity of croup and diphtheria, and only makes a separate chapter of it to show more clearly that the difference is only in the local and clinical symptoms, while the general disease is the same. Jacobi, Biedert, Steiner, Rauchfuss, and others are all at the present time of about the same opinion on this point. Mackenzie's arguments on the subject are very forcible. As to treatment he recommends removal of the membranes by means of a brush turned upside down. He also recommends early tracheotomy. In these points Biedert coincides with him. Tracheotomy should be performed at once if suffocative attacks occur after the first emetic.

In closing, Biedert says it is a pleasure to read the two works, to enjoy the clearness and conciseness of Mackenzie and the richer details of Jacobi. The author most earnestly recommends the works as clear and practical, and hopes all Germans will carefully read and study the translations.

11. Rosenstein: Incision of the Pericardium (*Berl. klin. Wchnschr.*, 5, 1881).—PROF. S. ROSENSTEIN (Leiden) on Jan. 16th examined a boy ten years old. Two weeks before he was taken sick with fever and with gastric symptoms, and since that time he had been short of breath and had a little cough. Careful examination revealed the presence of a very considerable pericardial exudation. Change from lying to sitting made no change in the form or extent of the area of dulness. The boy had no fever, the skin of the thorax was not edematous. An exploratory puncture with a hypodermic syringe showed pus. The increase of the dyspnea led Rosenstein to perform punction with aspiration, by means of which 620 ccm. of purely purulent fluid were withdrawn with the result of immediate and complete euphoria. But on the very next day the pericardial exudation increased, and a left pleuritis developed, so that two days later 1,200 ccm. of pleuritic and, again, 120 ccm. of pericardial exudation were removed with the aspirator. The general condition of the patient now growing worse, it was decided, on the eleventh day after admission, to incise the pericardium under antiseptic precautions. This was done, two drains were introduced, and Lister's bandage applied. A magical improvement of the general condition began. Nineteen days after the incision the boy was well, so far as the pericardium was concerned. The pleuritis having meantime become purulent, an incision of the pleura was necessary, but this also healed completely after some weeks. Rosenstein remarks that the case teaches, 1. That purulent pericarditis, like empyema, may run its course without any fever or any edema of the skin, so that it can only be recognized by exploratory puncture. 2. The fear of myocarditic changes should not hold us back from removing the exudation in suitable cases, because all the symptoms which make such probable can be explained by functional changes in the elasticity and contractility of the heart-muscles. 3. When there is a large collection of fluid in the pericardium, change of the patient's position may have no influence on the height of the area of dulness, so that this criterion cannot be relied upon in differentiating from dilatation of of the heart.

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